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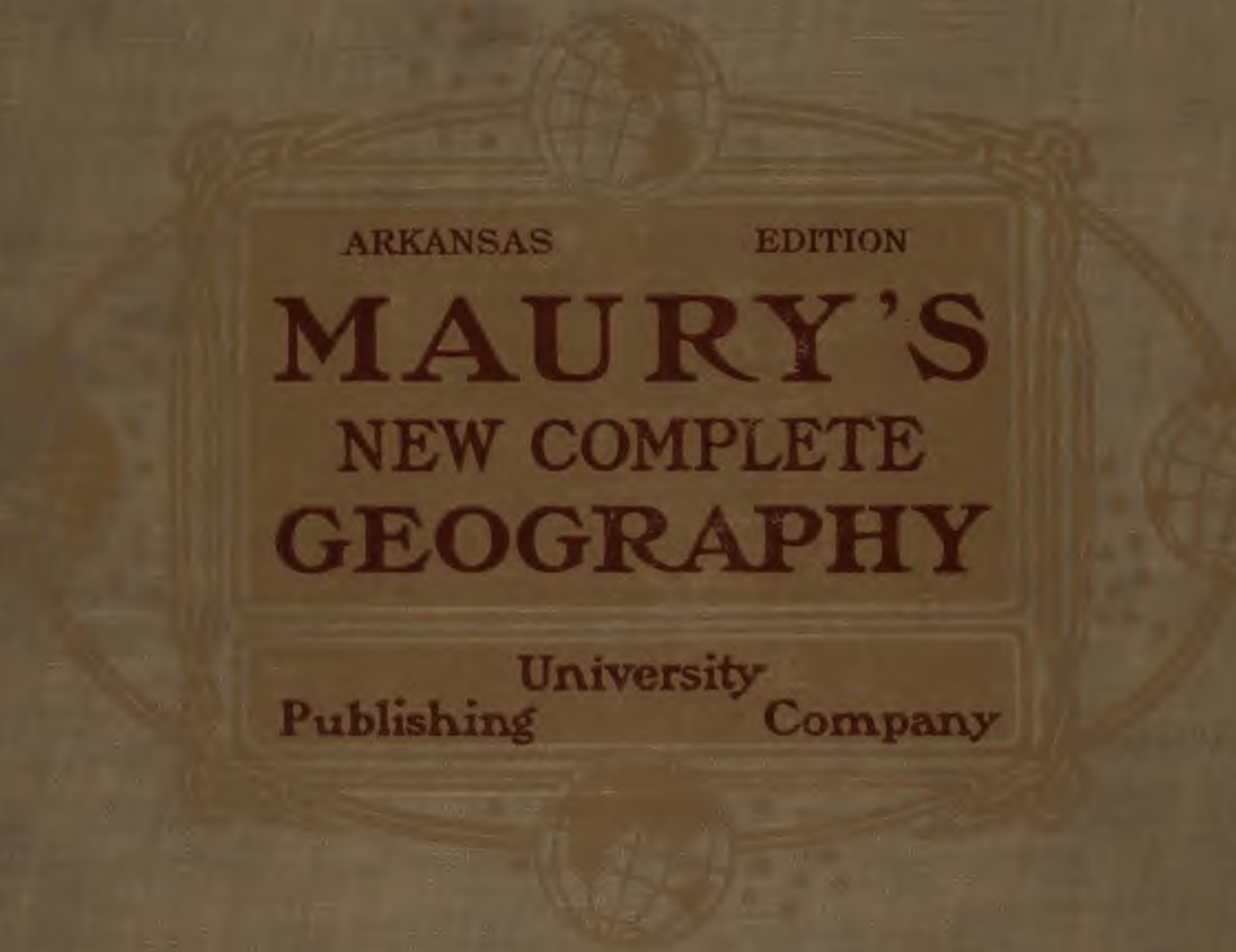
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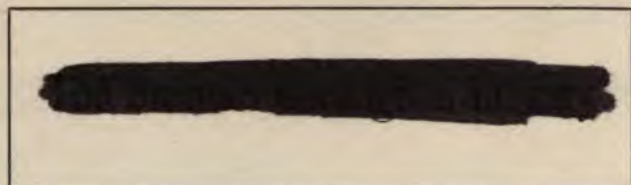
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MAURY'S
NEW COMPLETE
GEOGRAPHY

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1 GREEK



2 EAST INDIAN RAJA



3 ANGLO-SAXON



4 ARAB SHEIK



5 HEBREW



8 SPANIARD



9 CHINESE

6 SCOTCH HIGHERIDER

7 RUSSIAN



11 JAPANESE



10 ESKIMO



13 SIOUX

AMERICAN INDIANS



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THE MAURY GEOGRAPHICAL SERIES

NEW COMPLETE
GEOGRAPHY

BY

M. F. MAURY, LL. D.

Author of "Physical Geography of the Sea," and late Superintendent of the National Observatory, Washington, D. C.

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UNIVERSITY GEOGRAPHIES

PREFACE.

IN preparing this book we have carefully considered and have incorporated into it every feature which a consensus of opinion among educators has come to recognize as of real educational value. The whole geographical field was open to us, and we were free to choose whatever was regarded by the majority as best. We therefore offer this book as an embodiment of what conservative teachers regard as a safe mean between the widely divergent theories on which recent geographies have been based.

Physiography.—We have presented in an introductory chapter, and in the general chapter on physical geography, the leading facts with reference to land formation and land sculpture. We have presented these facts in detail in the discussion of the physical features of each continent, where they properly belong and can best be studied; we have again presented them in detail in the political sub-divisions of the continents, where their effects upon climate, industries, and people are pointed out. But we have not thought it wise to present an extended treatise on physiography, covering the first half of the book, to be studied long before the countries necessarily referred to have been given a definite location in the student's mind. We think it better to take up these features in detail under the continents and countries where they first become prominent.

We have decided to teach these features objectively on a plan that has been highly commended. For instance, instead of devoting two or three pages of text to the origin of mountains, a subject in which the average child takes no interest, we give in the general presentation of the physical geography of the earth four pictures of mountains, and under each picture give a brief description of the origin and character of the formation. The same course has been followed with reference to other physical features. The pupil will read these descriptions because of his interest in the picture, and will remember them for life because of their association with it.

Commercial and Industrial Geography.—A leading feature of this book is the treatment of industrial and commercial geography. In actual life, it is a knowledge of the countries of the earth, and of the people who inhabit them, of their resources and industries, their cities and commercial relations, that one needs for practical business purposes, or even for an intelligent appreciation of the contents of the daily newspapers.

Industrial Illustrations.—In carrying out this plan we have been engaged for three years past in collecting from all parts of the world industrial pictures—photographs showing machinery in actual operation, and under these we have placed descriptions which give in a few words a clear idea of the process of manufacture. We have distributed these throughout the book in such a way as to identify each industry with some state or country where it is especially prominent. We believe that this plan will awaken present interest and prove of permanent value.

Commercial Illustrations.—We also present a number of pictures made from photographs which relate to the commerce of the world, and under each have placed descriptions which fully explain them and which will enable the pupil to make valuable comparisons and to learn how the

are handled. Turn to the picture of New York, 58, of San Francisco, page 78, of Antofa-

gasta, page 107, of Liverpool, page 118, of Port Elizabeth, page 159, and many others of the same character which most strikingly illustrate this point.

Other Illustrations.—In addition to physical, industrial, and commercial illustrations, many others will be found, especially in the treatment of foreign countries, which give characteristic scenes in the life of the people; such as are found in Mexico, page 95, in Chile, page 107, Switzerland, page 133, in India, pages 144-5, etc.

Production Maps.—We decided not to insert production maps, because many of the best teachers now regard them as undesirable. The method now preferred is to require the pupil to make his own production maps, using blanks, which he may draw, trace or buy, for that purpose. For instance, to show the corn production of the United States, the pupil may write on a blank map the name "corn" where it is produced, or may indicate it by color, shading, or other methods. Maps which he makes in this way are invaluable, and fix the facts permanently in his mind. To teachers using this method, production maps in the book are a disadvantage, because they furnish the pupil a key, and prevent that thought and investigation which is necessary to construct the map, thereby fixing the facts permanently in his memory.

In the treatment of the United States each group of States is treated as a whole, and those features, physical and industrial, that are common to all, are presented in a general way. But each state, however small, has its own characteristics, its own group of cities, and certain industries that are peculiarly its own. These, we hold, should be known to all the people of the United States. Therefore, after the general description of each section, we have given a detailed description of each state. We think this much better than to select some one city or state as a type and devote pages to it while dismissing others with a line—a method which gives pupils a distorted idea of the states' and cities' relative importance.

Maps.—The maps are recent, and the double-page map, pages 86-87, showing the principal routes of transportation and travel will, we believe, prove of especial value.

Map Questions.—The map questions are comprehensive and complete. The questions upon the physical maps bring out the physical features; those upon the political maps fix in the pupil's mind the essential political features. A few years ago there was a certain prejudice against map questions; but this has passed away. To-day they are regarded by a majority of teachers as invaluable—they compel the pupil to refer again and again to the map, and this constant reference fixes its features on the memory. In after life the man may forget the map questions and the answers, but he still retains a clear mental picture of the map itself.

Accuracy.—In order to secure absolute accuracy in our description of the states, we sent last year to the Governor, or, in three instances, to another state officer, our description of his state, asking whether or not it was accurate and up to date. We received replies in many instances from the Governor himself, and in other instances from an officer in whose hands he had placed the matter. These replies either approved the

text or offered suggestions which we gratefully accepted. For foreign countries we obtained by direct correspondence with our consuls, from their official reports, the industrial and commercial details which go into the text. The statistics are taken from the latest department reports from Washington and from the latest foreign authorities.

Illustrations.—The illustrations are all from photographs, and a large part of these we have collected during the past two years in all parts of the world. We are indebted for several of our pictures to Messrs. Underwood and Underwood, whose copyrighted stereographic photographs we cordially recommend for purposes of geographical illustrations. We are also indebted for a few illustrations to Mr. H. C. White and to the Detroit Photographic Company, who own the copyrights.

To teachers and superintendents, both North and South, we are indebted for valuable assistance and suggestions, which came from their actual experience in the practical work of teaching geography to boys and girls.

We offer this as a new book, arranged on the plan as already outlined to meet the consensus of opinion of earnest, thoughtful educators who are teaching the subject of geography, or superintending educational systems. Wherever the text of MAURY'S MANUAL has been complete and sufficient

it has been retained. We were glad to be able to do this because it is so clear, simple, and attractive that it has won for the book the uniform favor of the teachers using it. The original text makes up so large a part of the book that it is still essentially Maury's work. Maury's Geographies never belonged to the old school, but rather to the new. Being devoted to the study of physical geography, and father of the science of the "Physical Geography of the Sea," he undertook the preparation of his book originally with the intention and purpose, "to redeem the most delightful of subjects from the bondage of dry statistics on one hand, and on the other, from the drudgery of vague, general ideas." In his original preface he adds: "In the preparation of this volume and that of its predecessors, no pains have been spared to lead the young geographer by easy and gentle gradations to vantage-ground from which he may overlook and survey nature for himself. 'The study of physical geography,' to borrow the words of Humboldt, 'finds its noblest and richest reward in a knowledge of the chain of connection by which all natural forces are linked together and made mutually dependent upon each other; and it is the perception of these relations that exalts our view and ennobles our enjoyment.'" It will therefore be seen that the development of modern methods of teaching this subject have only brought it nearer to Maury's ideal.

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GEOGRAPHY



INTRODUCTION.

1. **The Earth is one of the Heavenly Bodies.**—As we look into the sky on a clear night and behold the multitude of stars glittering in the far-away depth of space, it is hard to find any resemblance between them and the dark, solid earth on which we stand. It is hard to believe that the earth is a huge sphere rushing along in its curved path about the sun at a rate of speed swifter than that of a cannon ball, and at the same time rotating on its axis, apparently turning everything upside down every twenty-four hours.

And yet if we could stand upon the moon and view the earth, it would appear much as the moon now appears to us, only about four times as large; and if we could see it from a much greater distance, its appearance would be precisely like that of some of the stars.

3 F **Stars.**—If we should watch the stars carefully observe what men observed thou-

sands of years ago—that some of them always keep in the same positions, while others are constantly moving onward along certain paths. The stars of the first kind are called **fixed stars**; to those of the second kind the name **planets**, or **wanderers**, has been given.

The fixed stars are fiery suns like our own, but they are so far away that we can see only the light that comes from them. They are more than can be numbered, for though we can see only a few thousand with the eye alone, with the aid of a powerful telescope millions more are brought into view, which are at such enormous distances from the earth that not the faintest ray of their light is visible.

These stars appear to be arranged in groups, or **constellations**, which the ancient astronomers explained by saying that the gods had placed in the sky certain persons and animals as a reward for some merit that they possessed. Thus the "**Great Bear**," or "**Dipper**," was Callisto, a beautiful princess of Arcadia, whom the jealous Juno turned into a bear, and who was placed in the sky by Jupiter. The "**Little Bear**," which contains the Pole Star, was her son,

to be read and discussed with books open by class and teacher. Frequent reference should be made to these lessons during the progress of the book, and after it has been completed they may be assigned as regular lessons for recitation.

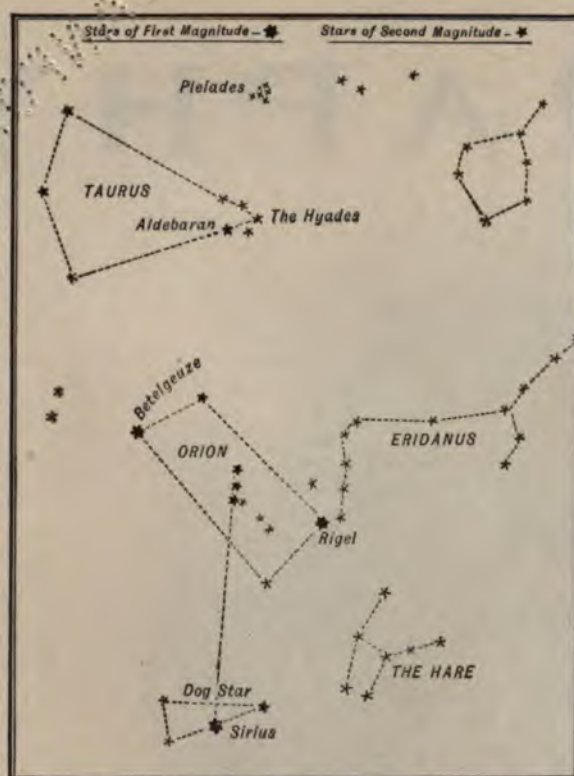
Arcas. Near the two bears are **Cassiopeia**, **Cepheus**, and the **Dragon**, about each of whom a story is told by the Greek writers. There is a great belt in the sky composed of twelve constellations entirely surrounding the earth. This belt is called the **zodiac**. Within it is the path along which the sun appears to travel in his yearly course. You may find the names of these constellations in an almanac, where they are called the **twelve signs of the zodiac**.

3. Planets and Moons.—The planets are our nearest neighbors among the heavenly bodies, and are the only ones, except our sun and moon, about which anything of importance is known. They shine with a steady light and revolve about the sun like our earth, but at different distances. The time required by a planet to make one revolution about the sun is called its **year**. The planets near the sun have shorter years than those farther away, because they move more swiftly and have less distance to go.

Nearest the sun is **Mercury**, named for the messenger of the gods because of his swiftness. Next is **Venus**, the brightest of the planets, named after the goddess of beauty. Beyond the earth is **Mars**, which received the name of the war-god on account of its red color. Next is **Jupiter**, the largest planet, and hence named after the king of the gods. Most distant from the sun are **Saturn**, **Uranus**, and **Neptune**. Between Mars and Jupiter are several hundred smaller planets called **planetoids**. These cannot be seen without a telescope.

All the planets, except Mercury and Venus, have bodies revolving about them which we call **satellites**, or **moons**; these help to light up the planets at night. The earth has but one moon, but Mars has two, Jupiter five, and Saturn eight. It is probable that many moons are yet undiscovered.

Phases of the Moon.—Notice the position of the **new moon** soon after sunset. Observe it for several nights at the same hour, and you will see that each night it is farther east and shows more and more of its illuminated side. At the end of two weeks it has moved entirely across the sky and appears in the east at sunset as the **full moon**. For the next two weeks it is seen later and later each night—showing less and less of its illuminated side—a half moon at the end of the third week as at the end of the first week. At the end of four weeks you may see it again in the west a thin crescent; it has revolved entirely about the earth. The time of its revolution is called a **month**. These changes in the appearance of the moon are called **phases**. By means of a telescope we may watch the revolution of other moons about their planets. The moons of Jupiter are the most easily seen.



A group of familiar constellations. Sirius is the brightest of the fixed stars. Notice that the three stars forming the belt of Orion point to it. The Hyades form a V and the Pleiades are in a cluster just above it.

Just as we may observe the moons revolving about their planets, so we may observe the planets revolving about the sun, only our observation must be far more careful and exact.

4. Comets and Meteors.—Besides the planets, moon, and fixed stars, there are strange fiery bodies that appear suddenly in the sky and vanish as quickly as they came. In the year 1882 a bright star appeared in the northeastern sky. As it moved along toward the sun, a fan-shaped light spread out behind it known as the **tail**. It circled about the sun and then sped away into the depths of space. Such bodies are called **comets**. As in the case of the fixed stars many comets have been seen with the telescope that are invisible to the naked eye.

Sometimes red-hot masses of iron or stone fall upon the earth. These are called **meteorites**. About 275 of them have fallen since the year 1800. We do not know where they come from, but some think that they are little planets which the earth meets in its journey around the sun. At certain seasons of the year flashes of light are seen in the sky. These are called **shooting stars**. They are doubtless meteorites that pass through the atmosphere of the earth, but do not reach its surface.

5. The Solar System.—The sun and the planets with their moons are together called the "Solar System." The **sun** is the center about which all other members of the system revolve. It is a red-hot mass of matter surrounded with burning vapor. The diameter of the sun is over 100 times that of the earth. This means that it would take 1,300,000 bodies the size of the earth to make up the sun. If the earth were as large as the sun, its surface would extend nearly 200,000 miles beyond the moon. An ocean steamer can sail around the earth in about fifty days; but if the earth were as large as the sun, the voyage would take fifteen years.



The phases of the moon. The sun is supposed to be above the picture in line with the earth and moon. The moon revolves about the earth in the direction shown by the arrow. Notice that when the moon is on the side of the earth opposite to the sun, we see the half of its surface that is lighted up; but when it is between the earth and the sun, only a small crescent-shaped part of the illuminated side can be seen; between these two positions half of its illuminated side, or a quarter of its entire surface, is visible.

From the sun all the planets and moons receive light and heat. Without this light and heat all the water on the earth would become ice. The earth would be wrapped in perpetual midnight, and every living thing, both plant and animal, would perish.

Origin of the Solar System.—It is thought by some astronomers that the sun, the planets, and moons

all once formed a single mass of glowing **vapor**, which filled all the space between the sun and the most distant planet. This mass rotated on its axis just as the earth does now. As the mass cooled, the motion of rotation caused it to bulge out at the equator, and a number of rings of vaporous matter were thrown off, which afterward took on a spherical form and continued to revolve about the central mass as planets. The planets also threw off rings of matter which came moons. The planet, Saturn, still has two **rings** revolving about it, which may be seen with the telescope. A noted s

has said: "The rings were left about Saturn to show us how the world was made.

The Surface of the Earth.—

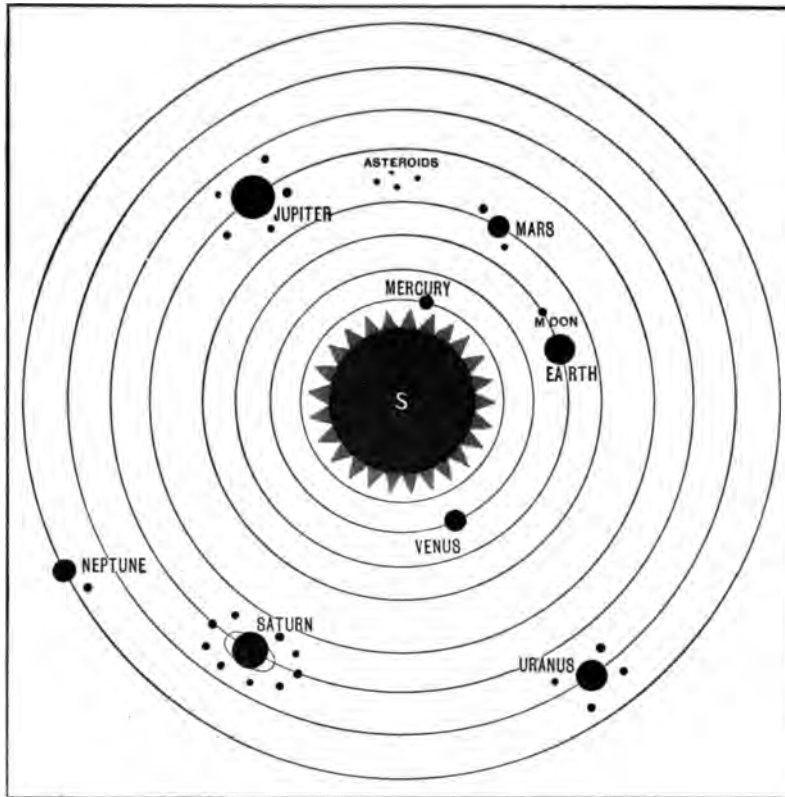
When the earth was first formed into a sphere it was intensely hot, and the waters which now form oceans and rivers floated above it in the form of vapor. But as the surface cooled, the vapor condensed into water and fell to the earth, only to be driven back again by the still heated rocks. At last the waters remained permanently upon the earth, covering the entire surface. When rocks cool from a melted condition they become much smaller. Accordingly, as the interior of the earth continued to cool it became smaller than the outer crust. This caused the crust to rise up in folds or wrinkles in the same way that a loose garment or a carpet too large for a floor will form in wrinkles or folds. The elevations thus formed were the beginning of the continents and the waters of the earth, gathering in the depressions, formed the oceans.

As soon as the land rose the waters began to take part in shaping its surface. The clouds laden with vapor were driven against the mountains, and condensed into rain; the rains began to form springs, and brooks, and rivers, which wore away the rocks and washed the loose material down to the lower levels where it was spread out as soil. In this way the plains and valleys were made. The waters of the sea, dashing against the shores, helped to grind up the rocks, and the frost and the atmosphere also took part in the forming of land.

Soon plants began to grow in the new soil. Their leaves and stalks decaying made the soil richer and deeper. After that animals appeared. First the simplest forms, such as shell-fish, corals, and sponges; then fishes and reptiles, and at last man.

The surface of the earth is undergoing constant change. The streams carve out valleys among the hills and mountains, and the worn-out earth material is carried away to build up plains along their lower courses, and to fill up the shallow parts of the ocean. Along the coast, capes, headlands, isthmuses, and islands are formed by the combined action of the rivers, waves, and the rising and sinking of the coast and ocean beds. In these various ways the forces of nature have gradually shaped the forms of land and water which we call natural divisions.

6. Divisions of Geography.—The study of the heavenly bodies is called "astronomy." So that part of geography that treats of the earth and its natural divisions is called "astronomical geography." The study of the shape and size of the earth and its surface, it is



The Solar System. The planets revolve about the sun in the same direction as the moon revolves about the earth, and all of their orbits or paths are nearly in the same plane. In this diagram the size of the planets is too great in proportion to that of the sun and the size of the moons too great in proportion to that of the planets about which they revolve. The relative distances of the planets from the sun are also only approximately shown.



A baked apple after cooling. The shrinking of the apple causes the skin to wrinkle. The height of the wrinkles and the depth of the furrows between them have about the same proportion to the size of the apple as mountains and valleys have to the size of the earth. The cause in each case is the same; that is, cooling from a heated state.

also called **Mathematical Geography**.

A second division is **Physical Geography**. This treats of the natural divisions of the earth, such as oceans, continents, islands, mountains, plains, and valleys, of the heat and moisture of the atmosphere, and of plants and animals. These two divisions of geography treat of the earth in its natural condition.

But the earth is the home of man, and man has divided it into countries, provinces, and cities. These are inhabited by different races and nations, each of which has its own customs, religion, and form of government. The branch of geography that treats of these things is called **Political Geography**.

One of the most important things that we learn in geography is how the earth is made to provide for the needs of mankind. Men engage in various occupations by which they produce the things that satisfy such needs. But since the same articles cannot be produced in all countries, the nations of the earth engage in trade to secure the things that they cannot obtain at home. That part of our subject that treats of the production of articles and the trade in them among the nations of the world is called **Commercial Geography**.

I. GENERAL DEFINITIONS.

1. Geography is a description of the surface of the earth, and its inhabitants. It is divided into Mathematical, Physical, Political, and Commercial Geography.

2. Mathematical Geography treats of the shape, size, and motions of the earth, the determination of positions and distances on its surface, and of its representation by globes and maps.

3. Physical Geography treats of the natural divisions of the surface of the earth, of climate, and the distribution of plants and animals.

4. Political Geography treats of the inhabitants of the earth, their customs and religions, their industrial pursuits, and their forms of government.

5. Commercial Geography treats of the commodities that are bought and sold by the nations of the earth, their production, transportation, and the trade in them.

Review Topics.—Fixed stars. Planets. Constellations. The zodiac. Moons. Comets. Meteors. Meteorites. The solar system. Origin of the surface of the earth. How natural divisions were formed. Effects of moving water. Plants. Animals. Geography. Its divisions. Mathematical Geography. Physical Geography. Political Geography. Commercial Geography.

MATHEMATICAL GEOGRAPHY.

II. SHAPE AND SIZE OF THE EARTH.

1. The Shape of the earth is nearly that of a sphere or round ball. It does not appear round to us, because we see so small a part of it at a time.

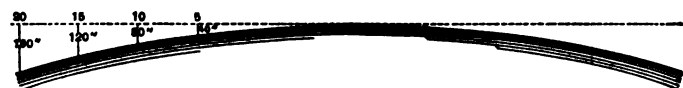
Early Theories.—In ancient times it was the general opinion that the earth was flat and circular, because it *appeared* so when seen from an elevation. Ancient nations thought, and savage tribes still think, that the country of each occupies the center of the earth, because from any high point of observation the horizon is equally distant on every side.

The philosophers of ancient Greece were among the first to make observations that led them to think that the earth was round. In the middle of the fourth century B. C., **Aristotle** said that travelers had noticed that when they went north or south a few hundred miles, new stars came into view before them on the horizon, while those behind them sank out of sight. This seemed to prove that they were traveling over a curved surface. Aristotle noticed also that when the earth comes between the sun and the moon, it casts a circular shadow upon the moon. This, he said, proved that the earth is a sphere, since only a sphere will cast a circular shadow in all positions.

Early Navigators thought the earth must be round, because whenever they came in sight of land, they first saw the tops of trees or the summits of the mountains, while the land beneath lay concealed from view. They also observed in watching a ship departing from shore that it gradually sinks below the horizon until the tips of the masts finally disappear.

Proofs.—In 1519, **Magellan**, a bold sailor of Portugal, proved these conjectures correct by actually sailing round the world.

If a level line be drawn along a flat coast or out to sea, in any direction, the surface of the earth is found to curve away from it about eight inches to the mile. This proves conclusively that the earth is a sphere.



A straight line touching the surface of the water. Notice that the surface curves away from this line forty inches at a distance of five miles, eighty inches at a distance of ten miles, etc. How far distant could you see a ship whose masts are fifty feet high?

But, though the form of the earth is thus known to be spherical, its exact shape and size has to be determined by laborious calculation.

Actual Measurement.—From measurements made in various parts of the world, it has been ascertained that the exact figure of the earth is that of an oblate spheroid.

A **Spheroid** is a body *like* a sphere or globe. An oblate spheroid is a globe flattened at the poles, somewhat as an orange is at the stem, especially if it be slightly compressed between the finger and thumb. The cause of the flattening at the poles and the bulging out at the equator is the motion of rotation. If any plastic body as a ball of putty or a soft rubber ball be rotated rapidly on its axis, it will flatten at the poles. This is due to the same force that causes a stone to fly from a sling when whirled about the hand. It is sometimes called **centrifugal force**, or **inertia**.

Since the earth is a sphere, or nearly so, some of us may wonder why it is that objects do not fall off the earth when it rotates. The reason for this is that the earth has a power of attraction, called **gravitation**, by which it draws all objects toward its center. People and things

on the opposite side of the earth are not really "upside down," because *down* is toward the earth's center and *up* is toward the sky. Hence everything on the earth is naturally "right side up."

2. Size of the Earth.—The Circumference of the earth, or greatest distance round it, is nearly 25,000 miles.

The **Diameter** of the earth, or distance through its center in a straight line, from any point on the surface to the point opposite, is nearly 8,000 miles. The polar diameter is $26\frac{1}{2}$ miles less than the equatorial diameter.

The **surface** of the earth contains about 197,000,000 square miles.

Review Topics.—Shape of the earth. Why does it seem flat? Give early theories about its shape. Proofs. What is the exact figure of the earth? Describe an oblate spheroid. Account for the flattening at the poles. What is gravitation? Explain the terms "up" and "down." What is the circumference of the earth? Its diameter? What is the difference between the polar and equatorial diameters. Area of its surface?

III. MOTIONS OF THE EARTH.

1. Daily Motion.—The sun is seen in the east every morning, and seems to cross the heavens and disappear in the west at sunset. The stars, in the same way, appear to rise in the east and sink in the west. This is not because the sun and stars go round the earth. They do not; they appear to do so because of the daily rotation of the earth on its axis.

Illustrations.—If an observer could watch our globe from the moon, and his eye first discern North and South America, these continents would in a few hours move out of sight; the Pacific Ocean would come into view instead; then the islands of Oceania, followed by Australia, Asia, Europe and Africa, the Atlantic Ocean, and, finally, America again.

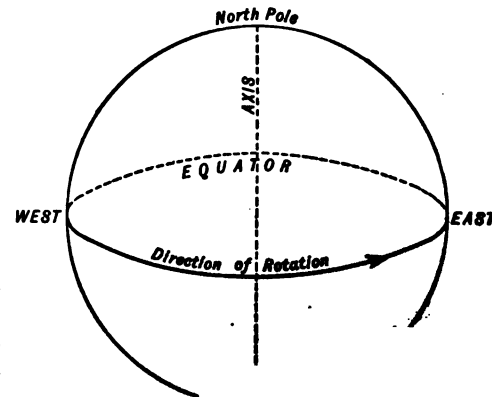
When we travel in the cars, the houses and trees that we see, seem to be moving past us, though we are really moving past them. They have an **apparent motion** opposite to the real motion of our train. So the sun and stars seem to be moving from east to west, though in reality we are moving with the earth from west to east.

Direction.—The earth is constantly turning round (rotating) in the same direction. This direction is called **east**. The diameter in which it rotates is called the **axis**.

The word "east" means *dawn*, and it was applied to the direction in which the earth rotates, because the first rays of the sun are seen in that direction. The direction opposite to east is called **west**.

North and South.—The earth's axis is perpendicular to a line running east and west. The directions in which it points are called north and south. Just above the North Pole is a bright star called the **Pole Star**, or **Polaris**; and we may easily find the direction at night by facing this star. The east will then be on our right, the west on our left, and south behind us. Sailors find their direction at sea by observing the North Star or by the use of the compass.

The Four Points—N., E., S., and W.—are called the **cardinal points**, that is, the **principal points**. Besides these there are other intermediate, or **semi-cardinal**



The rotation line called?

points, such as northeast, northwest, southeast, and southwest.

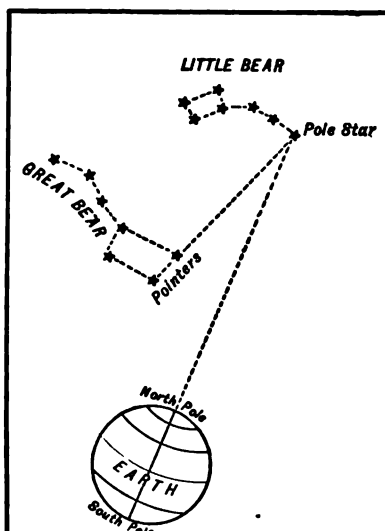
Time.—The time required for a complete rotation of the earth is called a day.

The day is divided for convenience into twenty-four hours, the hours into minutes, etc.

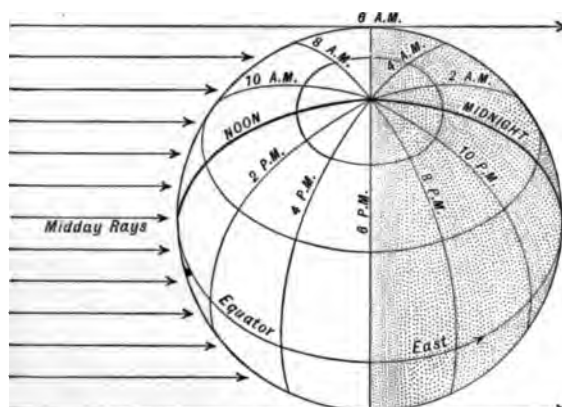
The Clock is an instrument for measuring the time of the earth's rotation. The dial is divided into twelve equal parts, and the hands move twice around the dial for every complete rotation of the earth.

Rate.—The circumference of the earth at the equator is 25,000 miles. A man, therefore, near the equator moves toward the east at the rate of about one thousand miles an hour, or seventeen miles a minute.

Effects.—The rotation of the earth causes day and night. The word day, as here used, means daylight. The earth is all the



Direction of the earth's axis. The Pole star is the only one which does not change its position. The other fixed stars revolve about it once each day. The direction of the earth's axis is also fixed, since it always points toward this star.



To illustrate the relation of longitude and time. The earth occupies this position at the time of the equinoxes. The sun rises and sets at 6 o'clock. The meridians are drawn 30 degrees apart. How many are there? As we go east from the meridian, where the midday rays of the sun strike, it becomes two hours later at each successive meridian; going west from the same meridian, it is two hours earlier at each interval of 30 degrees. How many degrees of longitude are equal to one hour of time? How far in degrees is it from midday to sunrise? From midday to midnight?

rise and midday earlier than we, and places to the west, later.

Illustration.—This may be made clear by placing a lamp or candle near the school globe. Mark on the globe the location of Liverpool, New York, San Francisco, and Honolulu. Now rotate the globe until the rays of the lamp just reach Liverpool. Remember that the direction in which we rotate the globe is called east. All places west of Liverpool are still in darkness. Continue to rotate the globe until the rays of the lamp reach New York, San Francisco, etc. Does the sun rise earlier or later at these places than at Liverpool?

2. Yearly Motion.—In addition to its daily rotation, the earth makes an annual revolution about the sun; this is accomplished once in every 365 $\frac{1}{4}$ days, or, more accurately, 365 days, 5 hours, 48 minutes, and 50 seconds. This period is called a year.

Earth's Orbit.—The path of the earth in its annual revolution is called its *orbit*. This orbit is an ellipse, but is so nearly a circle that it may be regarded as one. The earth is about 8,000 miles from the sun in winter than in summer, but the difference is about 92,800,000 miles.

role, we obtain its diameter by doubling

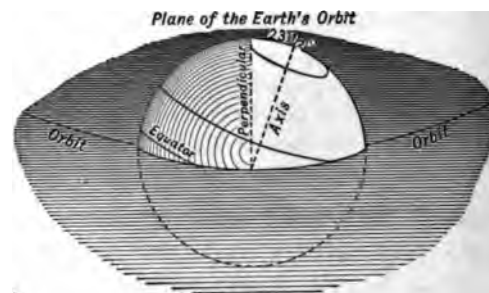
92,800,000. This diameter, multiplied by 3 $\frac{1}{2}$, gives us the distance traveled by the earth in one year. If we divide this distance by the number of minutes in a year, we shall find that, in our annual journey round the sun, we are traveling at the rate of more than a thousand miles a minute.

A Plane is a level surface like a floor.

If we imagine an immense plane passing through the center of the sun, and reaching the orbit of the earth at every point, we have an idea of what is meant by the **Plane of the Earth's Orbit**.

The axis of the earth is inclined to the plane of its orbit 23 $\frac{1}{2}$ °.

Illustration.—Suppose the page of this book to represent the Plane of the Earth's Orbit. Hold a pencil so that it is perpendicular to the page. It then makes an angle of 90° with it. Lower the top of the pencil half way to the page; it then makes an angle of 45°. Lower it one-fourth the distance to the page and it will represent very nearly the inclination of the earth's axis to the plane of its orbit.

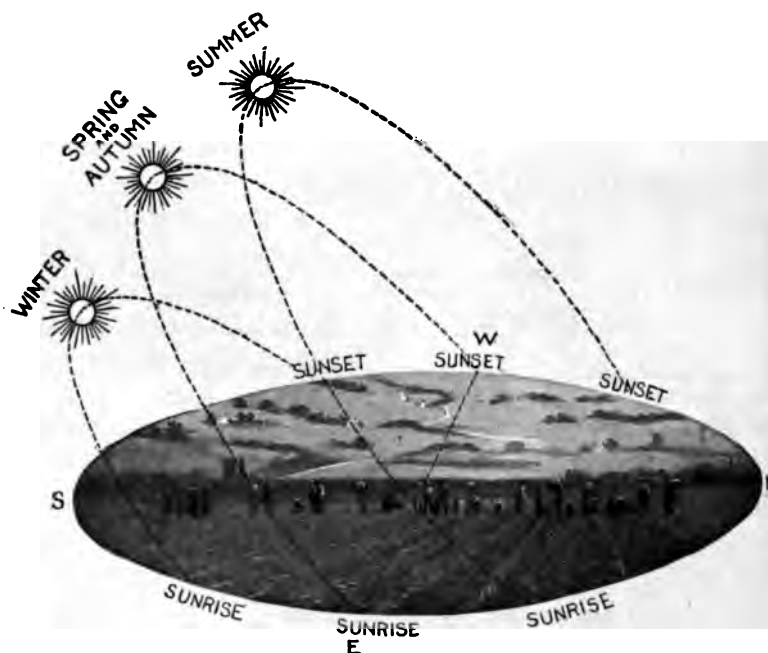


The shaded part of this picture represents a portion of the plane of the earth's orbit. The orbit is the curved path which the earth follows around the sun. Notice how much the axis of the earth is inclined toward a line that is perpendicular to the plane of the orbit.

Apparent Motion of the Sun.—The yearly revolution of the earth, combined with the inclination of its axis, has the effect of making the sun appear to move northward in summer and southward in winter.

The reason for this *apparent* motion will be understood by reference to diagram on page 12.

Review Topics.—Describe apparent daily motion of sun and stars. What really moves? Give illustration. What is the direction of the earth's daily motion? Time required for complete rotation? Define the axis and poles of the earth. What is the rate of the earth's rotation? What causes day and night? Why do places differ in time? Illustrate. What other motion has the earth? What is a year? Define the earth's orbit. How far are we from the sun? How fast do we travel round the sun? What is a plane? How much is the axis of the earth inclined? Describe the apparent yearly motion of the sun.

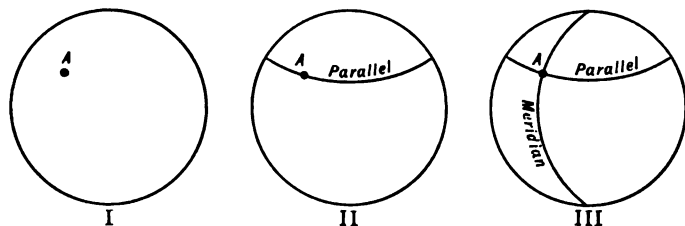


This picture shows the height of the sun above the horizon at the time of the solstices and the equinoxes. The dotted lines show the path of the sun through the sky and measure the length of the day at each of these periods. Notice that the sun rises in the true east and sets in the true west at the time of the equinox. At the winter solstice it rises and sets south of the east and west points; at the summer solstice it rises and sets north of them.

IV. LATITUDE AND LONGITUDE.

1. The Position of places on the earth is described by means of circles supposed to be drawn upon its surface.

Every place is supposed to have two such circles, one running north and south, called the **meridian** of the place, the other running east and west, called its **parallel**. Try to describe the position



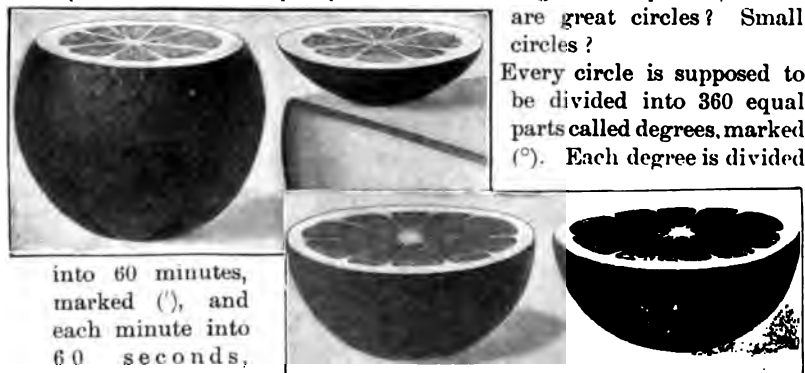
The use of parallels and meridians in fixing the location of places.

of the dot A on the surface of globe I; it cannot be done because there is no place to measure from. On globe II we may say the dot A is on a certain parallel. But this parallel runs all the way around the earth. Let us draw also the meridian of A; we may see now that the dot is at the intersection of the two circles.

2. A Great Circle is any circle that divides the globe into two equal parts or hemispheres.

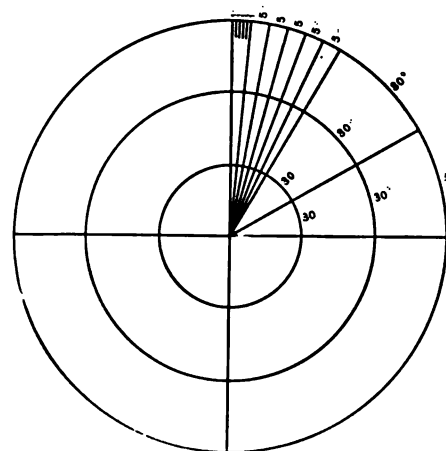
3. A Small Circle is any circle that divides the earth into two unequal parts.

Suppose two oranges be cut as shown in the picture; which is divided equally? which unequally? Examine the edges of the pieces; which



are great circles? Small circles? Every circle is supposed to be divided into 360 equal parts called degrees, marked (°). Each degree is divided

Oranges cut into equal and into unequal parts.



Three circles drawn from the same center having parts of their circumferences divided into degrees. One fourth of a circle contains ninety degrees and is called a quadrant. Any portion of a circumference is called an arc. Compare the lengths of arcs of thirty degrees in the three circles. Which circle has the longer arc? Which the shorter? Notice that each arc on the circumference corresponds to an angle at the center having the same number of degrees.

are great circles? Small circles? Every circle is supposed to be divided into 360 equal parts called degrees, marked (°). Each degree is divided

into 60 minutes, marked ('), and each minute into 60 seconds, marked ('). Since all circles contain the same number of degrees, it is evident that the length of a degree will depend on the size of the circle of which it is the $\frac{1}{360}$ part. This will be made clear by a study of the accompanying diagram.

4. The Equator is a great circle passing round the earth midway between the poles. It divides *equally* the surface of the earth. Hence its name.

5. Latitude.—Distance north or south of the Equator is called Latitude. It is expressed in degrees (°), minutes ('), and seconds (").

Places on the equator have no latitude. No place can have more than 90° of latitude, for no place can be farther from

the Equator than the Pole is. Places north of the Equator are in **north latitude**, those south of it, in **south latitude**. The degrees of latitude are numbered on the sides of maps.

Those regions of the earth lying near the Equator are sometimes called **low latitudes**. **High latitudes** are those near the poles.

6. Parallels of latitude are small circles that pass round the earth parallel to the Equator.

The lines that are drawn from

east to west across maps are parallels of latitude. East and west distances are measured along these lines.

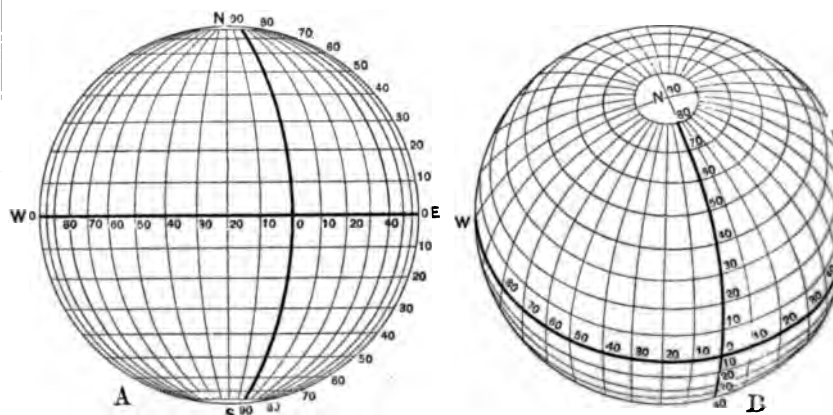
7. The Tropics are small circles parallel to the Equator, and 23½ degrees from it. The northern circle is the **Tropic of Cancer**; the southern, the **Tropic of Capricorn**.

Tropic is derived from a Greek word meaning *to turn*. The Tropics mark the farthest points north and south of the Equator that have the sun directly overhead. They are so named because the sun in his annual course appears to turn on reaching a point directly above these circles and to move in the opposite direction (see page 12).

8. The Polar Circles are small circles 23½ degrees from the poles. The one drawn about the North Pole is the **Arctic Circle**; the one about the South Pole is the **Antarctic Circle**.

The length of the days and of the nights within these circles varies from 24 hours to six months in length. On the circles themselves the extreme length is 24 hours. This increases to six months at the poles. This will be seen from a study of diagram on page 12.

9. Meridian Circles are great circles that pass through the poles. They are used on maps and globes to mark off into

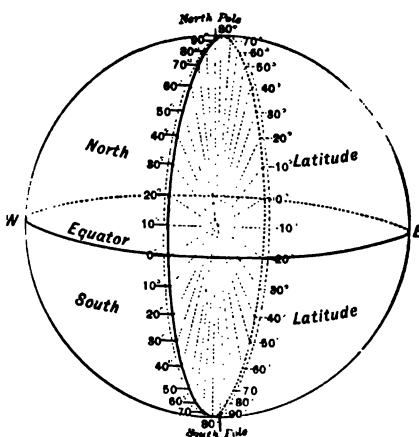


Meridians and parallels drawn upon a globe. The heavy meridian in A passes through Greenwich. Degrees of latitude are marked along the 70th meridian; degrees of longitude are marked below the equator. In B the globe is turned so that parallels may be seen running entirely around the globe. Notice that they become smaller and smaller as they approach the poles, where the length of a degree of longitude (that is, 1-360 of a parallel) becomes zero.

equal portions the entire distance east and west round the earth on any parallel.

10. A Meridian is half a meridian circle. It extends from pole to pole.

Meridian means midday. As the sun reaches each meridian, it is noon at all places through which that meridian passes from pole to pole.



A meridian circle divided into degrees. Which part of this circle is used to measure north latitude? Which south latitude? What is half of a meridian circle called?

There is no limit to the number of parallels, meridians, and meridian circles that may be drawn upon the globe. In fact, every place on the earth has its own meridian and parallel which may be found by careful computation.

11. Longitude.—Distance east or west of a given meridian is called Longitude. It is expressed in degrees ($^{\circ}$), minutes ($'$), and seconds ($''$). Longitude is reckoned from the **Prime, or First Meridian.**

A **Prime Meridian** is any meridian from which a nation may choose to reckon longitude. The International Meridian Conference, which met in 1884 at Washington, recommended that the **Meridian at Greenwich, England,** be adopted as the Prime Meridian for all nations.

If a place is east of the prime meridian, it is in **East Longitude**; if on the west, it is in **West Longitude.** The degrees of longitude are numbered on the top and bottom of maps. Places on a prime meridian have no longitude. [The Poles also have no longitude, as they are at the place where all meridians meet.]

Longitude is measured on the equator and on parallels of latitude east and west from the prime meridian. Notice that east longitude and west longitude meet at 180° , which is the greatest distance from the prime meridian that any place can have.

Length of Degrees.—As all the meridians meet at the poles, and diverge or spread out thence till they reach the equator, the distance between any two varies with the latitude. Therefore a degree of longitude is greater at the equator than it is either north or south of it.

A degree of longitude at the equator is nearly 69.2 miles; degrees diminish in length until the pole is reached, where there is no such thing as longitude.

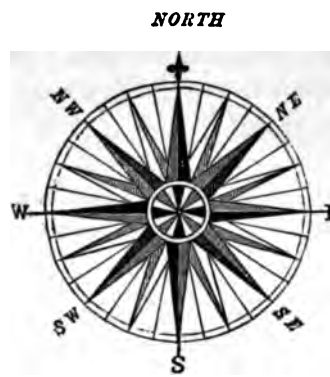
Length of a Degree of Longitude measured on every 10th Parallel of Latitude.

Lat.	Miles.	Lat.	Miles.	Lat.	Miles.
0°	69.19	30°	59.0	60°	34.5
10°	67.9	40°	52.3	70°	23.6
20°	65.0	50°	44.4	80°	11.9

If the earth were a perfect sphere, a degree of latitude would be everywhere of just the same length; but owing to the flattening of the earth, it is $\frac{1}{8}$ of a mile longer at the poles than at the equator; at the equator it is half a mile less than a degree of longitude, while at the poles it is $\frac{1}{8}$ of a mile more. Practically, a degree of latitude may be regarded as everywhere equal to $69\frac{1}{4}$ miles.

12. The convenience of using latitude and longitude at sea may be readily shown.

Suppose a whaling ship in the Pacific Ocean wishes to sail for Honolulu in the Hawaiian Islands. By making use of the sun the captain finds that his latitude is 21° N. By examining his chart of position, and finding that Honolulu is at 21° N. longitude, he is able to find the ship's chronometer, or clock, by which he can find the time. By examining his chart of position, and finding that Honolulu is at 157° W. longitude, he is able to find the ship's chronometer, or clock, by which he can find the time. By examining his chart of position, and finding that Honolulu is at 21° N. longitude, he is able to find the ship's chronometer, or clock, by which he can find the time.



Mariner's Compass.

The boundaries of states and countries are frequently parallels and meridians, as these may always be easily found.

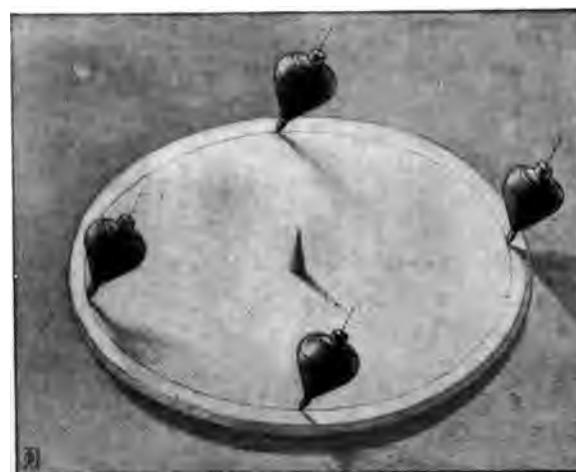
Review Topics—Position of places on the earth. Great circle. Small circle. How are circles divided? Equator. Why so called? Latitude. How much latitude can a place have? How little? Parallels. The tropics. Polar circles. Meridian circles. Meridians. Longitude. A prime meridian. How much longitude can a place have? How little? Are degrees of longitude all of the same length? Do degrees of latitude vary in length? How long are they? Explain the use of latitude and longitude. The Mariner's compass. Its use.

V. CHANGE OF SEASONS.

1. Inclination of the Earth's Axis.—The axis of the earth is inclined to the plane of its orbit, just as the axis of a top often inclines toward the floor when it begins to spin upon it.

The top spins round on its axis, and at the same time may travel round some point on the floor. It has thus two motions.

In like manner the earth turns round on its axis in daily rotation, and, at the same time, travels round the sun in yearly revolution.



A top spinning and moving about a point.

When a top is first thrown, it will often move around some point with its axis inclined, as shown in the picture. Imagine the top spinning in space and moving about in a circle, and you will have a correct

idea of the rotation and revolution of the earth.

There is this difference between the earth and the top; the top inclines more and more as its spinning slackens, but the earth never slackens its rate, and the inclination of its axis is always the same. It inclines from the perpendicular at the constant angle of $23\frac{1}{2}^{\circ}$; and the north pole constantly points toward the north star.

If the earth's axis were perpendicular to the plane of its orbit, the sun's rays would come from the same direction throughout the year; as a result of this, the days and nights would be of equal length all the year, and there would be no change of seasons. The frigid zones would have perpetual winter, the temperate zones perpetual spring; in the torrid zone the climate would be uniformly hot throughout the year. Just as this position of the axis would result in a uniform temperature throughout the year in each latitude, so it would make the winds and rainfall uniform throughout the year.

2. Effect.—The inclination of the axis of the earth, combined with its revolution in its orbit, causes the seasons; for when the earth is in one part of its orbit, the north pole is turned toward the sun; and when in the opposite part, the south pole is turned toward the sun.

3. Equinoxes.—Twice every year day and night are equal in length. These times are called the Equinoxes (*æquus, equal; nox, night*). They mark the seasons of spring and autumn.

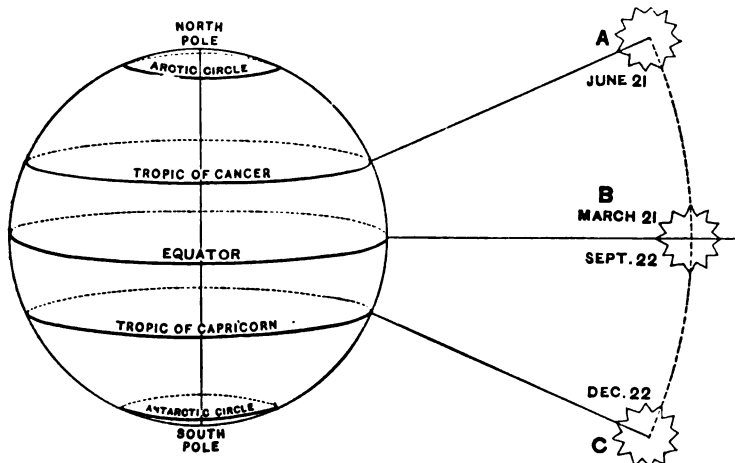


Diagram to illustrate the apparent motion of the sun north and south of the equator. (Compare with figure on page 9.) When the sun is at B its rays are perpendicular to the equator, and the days and nights are equal all over the earth. When the sun is at A its rays are perpendicular to the Tropic of Cancer, the northern hemisphere has summer, and the southern, winter. At C the rays are perpendicular to the Tropic of Capricorn, and the seasons are reversed.

In passing northward from C to A, the sun crosses, or is opposite to the Equator at B. This happens on the 21st of March every year. On that day the sun sets at the south pole and rises at the north pole. At all other places it rises and sets at six o'clock; consequently the day and night are then equal: this is the **Vernal or Spring Equinox**. Six months afterward—on the 22d of September—as the sun returns from the Tropic of Cancer to the Tropic of Capricorn, it again crosses the equator.

He now sets at the north pole and rises at the south. Day and night are again equal; and this time is called the **Autumnal Equinox**.

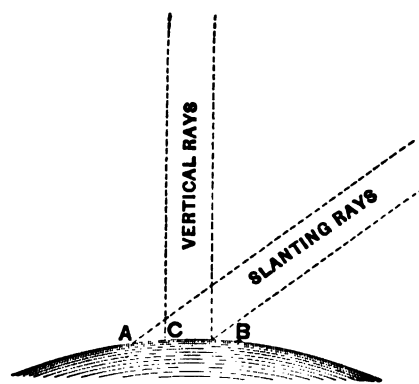
4. Solstices.—When the sun in his apparent journey reaches the most northerly point in summer, and the most southerly in winter, he appears to *stand still* for several days.

One of these “*stand-still*” places is called the **summer solstice**, the other the **winter solstice**.

Summer Solstice.—On the 21st of June the sun reaches the summer solstice, or northern limit of his journey. He is now $23\frac{1}{2}^\circ$ north of the equator, on the Tropic of Cancer. At noon, therefore, his rays are vertical (directly overhead) to all places on or near that tropic. Consequently in all places north of the equator it is the **warm season** of the year.

Winter Solstice.—On the 22d of December the sun reaches his other solstice at the Tropic of Capricorn. He is now vertical at noon to all places on or near that tropic, and the southern hemisphere has **summer**.

But at this time the rays of the sun fall slantingly, and therefore feebly, on the northern part of the earth, because (as seen in the diagram of the Orbit of the Earth) that part now leans away from him. Therefore we in the northern hemisphere have now cold weather, and we call the December solstice the **winter solstice**. Having reached the winter solstice, the sun turns again toward the north.



To illustrate why slanting rays of the sun heat the earth less than vertical rays. In the figure the vertical rays fall upon a surface represented by C B. The same number of rays striking the earth in a slanting direction are spread over twice as much surface, namely A B. It is clear that the rays when concentrated would be hotter.

5. Seasons.—Thus the year is divided into seasons, and the seasons on the two sides of the equator are opposite; that is, when it is winter with us in the northern part of the earth, it is summer with the people on the southern side of the equator.

Review Topics.—Illustrate the inclination of the earth's axis. How is the earth like a spinning top? How does it differ from the top? What is the effect of the inclination of the earth's axis? How often are day and night equal every year. What are these times called? What seasons do they mark? Explain the vernal equinox. The autumnal equinox. The solstices. When do they occur? Summer solstice. Winter solstice. What is said of the seasons?

VI. THE ZONES.

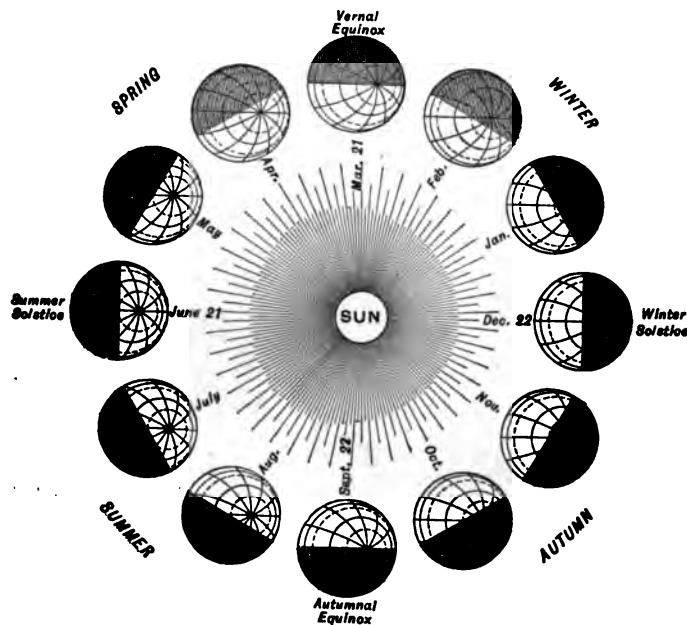
1. Zones.—The Tropics and the Polar Circles divide the earth's surface into five great belts or zones which differ in temperature. They are called the **Torrid**, the **North Frigid**, the **South Frigid**, the **North Temperate**, and the **South Temperate Zones**.

2. The Torrid Zone.—The belt between the two Tropics is the **Torrid Zone**. It is 47° wide. It embraces two-fifths of the entire surface of the earth. This is the **tropical region**.

The sun is vertical twice a year to all places within these regions, and there is no cold weather; the people do not, as a rule, even build chimneys to their houses. The year is usually divided into two seasons, the **rainy** and the **dry**, corresponding to our summer and winter.

The sun is never vertical to any place north of the Tropic of Cancer, nor to any place south of the Tropic of Capricorn.

3. The Frigid Zones.—The space that lies between the Arctic Circle and the north pole is the **North Frigid Zone**. The **South Frigid Zone** is between the Antarctic Circle and the south pole. Each of these zones is circular in shape, having a radius of $23\frac{1}{2}^\circ$. The summers are short, and the winters long and severe. As we approach the poles, the days in summer become longer and longer, till at the poles there is but one day and one night during the whole year, each being six months long.



Illustrating the position of the earth with reference to the sun during each month of the year. Notice that half of the earth is always lighted up. At the equinoxes the parallels of latitude are divided equally between light and darkness, showing that the days and nights are equal. At all other times the parallels are divided unequally, showing that the days and nights are unequal in length. Take any parallel, trace it around the circle and note how the length of the day changes in each month. Notice also how the change of seasons depends upon the direction in which the sun's rays strike the earth. On June 21 the North Pole is turned toward the earth and the northern hemisphere has summer. What is true about the seasons on December 22?

To an observer at the pole the sun has no rising and setting as we understand these terms. About March 21 its first rays appear. Following the horizon it makes a complete circuit of the sky every twenty-four hours, rising spirally for three months until it reaches a height of $23\frac{1}{2}^{\circ}$. This is at the time of the summer solstice. It then descends as it rose, disappearing below the horizon September 21, and the long polar winter begins. As the sun sinks only $23\frac{1}{2}^{\circ}$ below the horizon, it does not become entirely dark in the Frigid Zones, but twilight prevails through the long winter.

At the time of the Vernal Equinox, when the season for its return draws near, the inhabitants of these icy lands anxiously look for it, and climb the mountains to catch a glimpse of its earliest beams. From this time (March 21) until September 22, when the sun again reaches the equator, there is uninterrupted daylight at the pole.

These circumstances of day and night occur in reversed order in the South Frigid Zone.

The larger part of the area of these zones has never been visited by man, and we do not know whether it consists mostly of land or of water.

4. The Temperate Zones.—The region between the Tropic of Cancer and the Arctic Circle is the **North Temperate Zone**. That between the Tropic of Capricorn and the Antarctic Circle is the **South Temperate Zone**. Each is 43° wide.

In the temperate zones the year is divided into the **four seasons**—spring, summer, autumn, and winter.

A little more than half the earth's surface is contained in these two zones. The North Temperate Zone is the one in which we live. All parts of the United States, except the northern portion of Alaska and our Island Regions (see p. 82), lie within it.

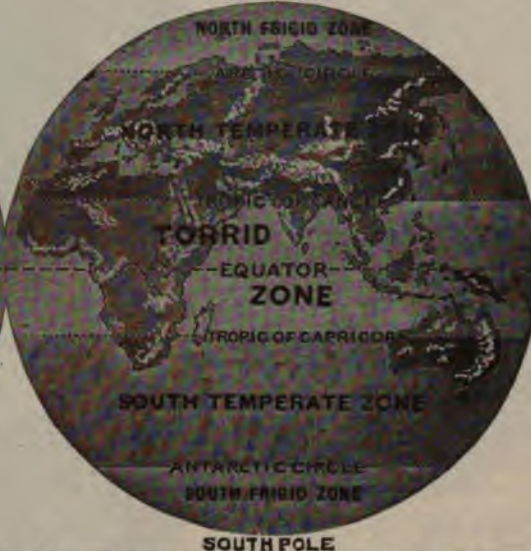
NORTH POLE



Map of the hemispheres, showing the zones and their boundaries.

In **Mercator's Projection** the map surface is a hollow cylinder inclosing the globe. The equator and parallels are then drawn upon the cylinder in their proper latitude, and the meridians become straight lines running from top to bottom. All other lines are drawn according to the parallels and meridians thus obtained. The cylinder is then cut open and spread out. The result is a map similar to that on pp. 166-167. It will be noticed that since the cylinder touches the globe at the equator, that circle will be

NORTH POLE



The light shading indicates the highland regions of the earth.

represented at its true size; but as the parallels of latitude are all the same size as the equator, the map will represent places in high latitudes much too large.

Mercator's chart distorts the surface it represents, as every chart must do that attempts to represent on a plane the surface of a sphere; but it distorts in such a manner as to make all places on it preserve their true course from each other. This also makes it easy to take their true distance apart.

All maps in this book, except the two named above, are made either by **Conical Projection** or by **Spherical Projection**. These methods give maps which are most nearly like the countries themselves. As shown in the figures, a cone or sphere is supposed to touch the globe at the parallel which is in the center of the country to be mapped. The map is then obtained in the same manner as Mercator's projection.

Direction is shown on all maps by meridians and parallels. Distances are found by a **scale of miles** attached to each map which usually shows the equivalent in miles of a line one inch long drawn on the map.

Review Topics.—A globe. How may it be divided? Maps. How can we make a map of the world? What part of the map is north? South? East? West? For what is a "scale of miles" used? Who was Mercator? His charts. Other methods of making maps.

PHYSICAL GEOGRAPHY.

VIII. NATURAL DIVISIONS OF THE EARTH.

1. Land and Water.—The surface of the earth is composed of *land* and *water*.

The land forms about one-fourth of the earth's surface; the water about three-fourths.

2. Divisions of Land and Water.—Bodies of land are classified, according to form, as Continents and Islands. Certain portions of the land are called Peninsulas, Capes, and Bays.

According to variations of elevation, they are called Mountains, Hills, and Valleys.

Seas, Gulfs, or Bays,

VII. GLOBES AND MAPS.

1. A Globe is the most natural representation of the earth because it is round.

Upon its surface may be drawn the divisions of land and water and the earth's circles.

2. Maps are representations of the earth on a flat surface and are more convenient than globes. By means of maps, continents, countries, and smaller sections of the earth's surface may be represented of any size or *scale* desired.



Showing how a map is made by conical projection.

Showing how Mercator's chart is made.

The maps used by navigators are made upon the plan invented by Mercator, a native of Belgium.

IX. THE FORMS OF LAND.

1. Continents.—There are six large masses of land called continents, viz., North America, South America, Europe, Asia, Africa, and Australia. Since Europe and Asia form a single land mass, they are often described as one continent under the name Eurasia.

2. An Island is a body of land that is surrounded by water, as Cuba, Madagascar, New Zealand.

A group of islands is sometimes called an Archipelago.

Islands are divided into two classes, continental and oceanic islands. Continental Islands are those that lie near the continents, from which they are separated by shallow seas.

They are supposed to have once been a part of the continents and to have become separated from them by a sinking of the land. This allowed the water of the ocean to overflow the low places, thus leaving some of the higher elevations along the coast surrounded by water. The plants, animals, and rocks of the continental islands resemble those of the continents near which they lie.

Oceanic Islands lie at a distance from the continents and are surrounded by deep water. They are either volcanic or coral islands.

3. A Peninsula (*pæne*, almost; *insula*, island) is a portion of land that is almost surrounded by water.

Florida is a peninsula, Arabia is a peninsula, Portugal and Spain together form a peninsula.

4. An Isthmus is a narrow neck of land connecting two larger bodies of land, as the Isthmus of Panama.



A small peninsula, promontory, and cape. This is Monaco, on the Mediterranean coast. The coast line beyond the peninsula curves in, forming a small bay on which the city of Nice is built.

Many important isthmuses are cut by canals to enable ships to pass between the bodies of water on either side of them.

5. A Cape, Point, or Headland is the extreme end of any land projecting into the water, as Cape Hatteras, Cape Horn.

A high cape or headland is called a **promontory**. The Lizard at the southwestern end of England is a **point**.

6. A Coast or Shore is that part of the land bordering upon the water.

The character of the **coast-line** is constantly changing. The waves wear away the rocks, crumbling them to sand, and the tides and currents distribute it in **beaches** and **flats** along the shore and at the mouths of rivers.

Changes in the level of the land are more easily seen at the seashore than inland. By the sinking of the coast, the mouths of streams are deepened, forming **fjords** and **estuaries**, thus affording excellent harbors. A rising coast, however, brings the level sea bottom to the surface, forming **coastal plains**, but destroying the harbors entirely or making them too shallow for large vessels.

So important is the coast to a commercial country that governments spend large sums of money in deepening harbors, erecting **lighthouses**, and **signals**, maintaining **life-saving stations**, in making maps of the coast showing depth of water and channels, thus providing for the safety of ships and sailors and for the security of merchants against loss.

7. Mountains are high elevations of land. A **mountain range** consists of a series of mountains. A number of ranges extending in the same general direction is called a **Mountain System**. Hills are lower elevations than mountains.

Mountain ranges were formed by the crumpling up and folding of the rocky layers of the earth's crust, as it contracted to fit the shrinking interior. These mountain folds were pushed up higher and higher by a gradual rising of the land. As the folds became steeper the rocks were crumpled and broken, forming sharp peaks and jagged surfaces. As mountain regions are being raised by forces within the earth, they are being worn down by rain, snow, frost, and glaciers at work on the surface. The wearing away of rock by these agencies is called weathering.

How mountains affect man.—Mountains are barriers to travel, and often serve as boundaries to countries, keeping people from



Montauk Point, the eastern extremity of Long Island, showing lighthouse and life-saving station.

spreading into the regions beyond. They are sometimes crossed by **gaps**, or **passes**, which become important highways of travel and trade. They are usually covered with forests, making a home for animals valuable for their flesh and skins. The fractures in the rock layers of mountains have often been filled with minerals containing gold, silver, copper, and other metals. Such deposits are called **veins**.

The height of mountains is always reckoned from the level of the

sea. We can measure the height of a mountain by means of a barometer. At the sea-level the quicksilver in the tube of the barometer stands at the height of 30 inches. Now as the barometer is taken up above the sea, the quicksilver will fall in the tube about one-tenth of an inch for every 60 feet of perpendicular ascent.



View of the Rocky Mountains in Canada. These, like the Alps, are young mountains. Thousands of years will be required for the rain and the atmosphere, the ice and frost, to wear down their ragged outlines and to fill up the narrow valleys. Notice the change in vegetation from the foot of the mountains to their summits. At the base one sees flowering plants and trees of considerable height. But as we ascend we find the trees dwarfed and vegetation scanty, until at the tops the mountains are clothed with snow and ice.

8. A **Volcano** is an opening in the earth through which issue flames, vapors and gases, heated stones, and lava, or melted rock. These materials build up a cone-shaped mountain around the opening which is usually bowl-shaped and is called the **crater**.

Volcanoes are the best proof that the interior of the earth or parts of it are in a highly heated condition. The cause of the explosions that accompany the eruptions of volcanoes is the sudden formation of steam caused by water finding its way to the heated rocks.

Volcanoes are usually situated near the coast line. There is a remark-



Allegheny Mountains in Virginia. These mountains are crumples in the earth's crust and were once much higher, but they are very old. They have been worn down during the ages that have passed, and their tops rounded off by rain and snow, rivers and streams.



Allegheny Mountains in Pennsylvania. These mountains were not broken into sharp ridges when the earth's surface contracted, but the horizontal layers of rock were raised slowly, with very little crumpling, forming at first a plateau, out of which the mountains which we see there to-day have been carved by streams and other physical agencies. Their tops, however, are nearly on the same level. Such a mountain region is sometimes called a dissected plateau.

able series of them extending from Tierra del Fuego to Alaska. The most active volcanic region in the world is in the East In



The Alps. As the thick layers of rock were slowly crushed together by the contracting of the earth's crust, they crumpled and tilted up along certain lines. As they rose higher, the high peaks which you see here were formed. These are young mountains. We can tell this by their sharp and rugged peaks and by the fossils (remains of animal life) found there. They are still slowly rising, but their tops are being worn down by physical agencies.

Java is the center of it. This island has twenty-one active volcanoes. Sometimes great injury is caused by volcanoes. Eighteen hundred years ago the cities of **Herculaneum** and **Pompeii**, in Italy, were covered with ashes thrown from Mt. Vesuvius. In 1906 Vesuvius destroyed several towns at its base.

When a volcano ceases to emit flames, and is in process of extinction, it often sends out sulphurous gases, and deposits sulphur in large quantities; it then becomes a **solfatara**.

9. A **Plateau**, or **Table-land**, is an elevated plain, often broken or bordered by ranges of mountains.

The term **Highland** is often used to designate a region of considerable elevation. It may contain lofty mountain ranges; as the Pacific Highland in North America.

10. A **Plain** is a broad extent of nearly level land.

In North America, the immense plains of the Mississippi Valley are called **prairies**. In South America similar plains are called **llanos** (lyah'noz), **pampas**, or **selvas**; and in Russia and Asia, **steppes**.

11. A **Valley** is the land lying between hills or mountains, or between ranges of mountains.

12. **Deserts** are wide wastes of land, sometimes flat and sandy, sometimes hilly, or mountainous, and generally destitute of vegetation and water.

An **oasis** or fertile spot in a desert, is made so by springs which come up to the surface.

Review Topics.—Define continent; island; continental islands; oceanic islands; peninsula; isthmus; cape; promontory. What are mountains? Ranges? Mountain systems? Hills? What is a volcano? A crater? What



A view of the interior of a volcano, showing the structure of which the mountain is partly built.

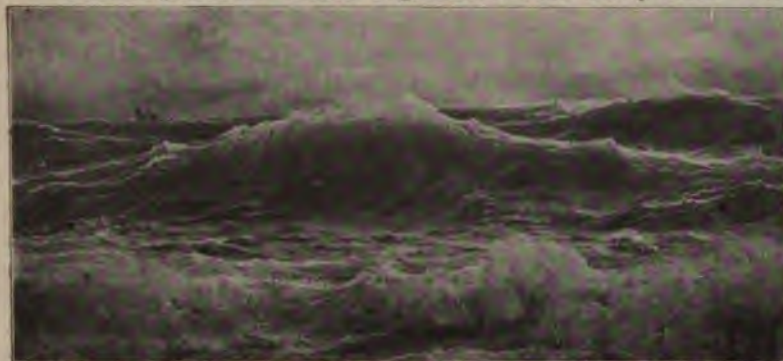


A plain or prairie in northern Texas. This land was formed, under water, of materials washed down from the mountains by streams and spread out evenly over the ocean bed.

X. THE WATER.

1. **The Sea** is the vast body of salt water which covers about three-fourths of the globe. It is really *one* body surrounding the continental land masses on every side, but is divided by them into five oceans, known as the **Pacific**, the **Indian**, the **Atlantic**, the **Arctic**, and the **Antarctic**.

Waves.—The surface of the ocean is continually broken into waves and ripples by the wind. Waves are really a movement of the water up and down; but this movement, once started, spreads until the waves break upon shores hundreds of miles away. Waves vary in height from a few inches to fifty feet or more. As they approach the shore, the lower part is held back by friction against the sea bottom, while the top plunges forward as a **breaker**. This constant plunge of breakers against rocky shores undermines the cliffs and grinds the broken fragments to sand and pebbles. This



The ocean. The ocean once covered the entire surface of the earth. Then its water was fresh. When land (then solid rock) appeared, the waves began to wear the rock down and spread the ground-up rock material over the ocean bed. This work has been going on ever since.

sand is partly spread out over the ocean bottom by currents and partly washed back upon the shore, forming beaches that slope gently outward into deep water. The arrangement of the sand depends upon the direction of the ocean currents that flow along the coast. Along the middle and south Atlantic coast of the United States it is piled up in long beaches parallel with the shore. The still water between these beaches and the shore is known as a **lagoon**. Such lagoons are often filled by sediment brought down by rivers and become **salt marshes** or **meadows**.

When the sand is deposited across the mouth of rivers it is called a **bar** and becomes a hindrance to navigation. When a sandy beach forms at right angles to the coast it becomes a **spit**. When curved, the spit becomes a **hook**.

Tides.—Everywhere along the seashore and in the mouths of rivers that flow into the sea, we may observe the regular rising and falling of the water called the tides.

For six hours the water rises, and it is then

high, or **flood**, tide; it then falls for six hours and then we have **low**, or **ebb**, tide. High tide occurs at any place when the moon is either over that place or on the side of the earth opposite it. Hence we infer that the tides are caused by the **attraction** that the moon has for the water. During one complete rotation of the earth, each place would come once underneath the moon. But the moon is also moving around the earth in the same direction as the earth rotates. Hence each place is brought underneath the moon, and high tide occurs about fifty minutes later each day.

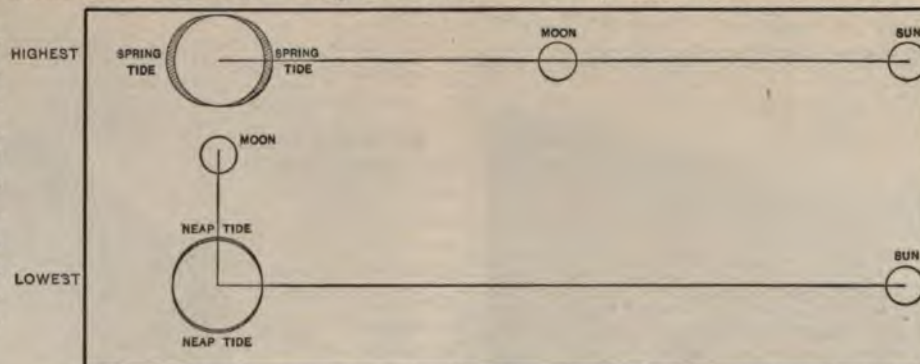


The ocean beating against the rocky cliffs, showing how the waves break off pieces of rock and grind them into small grains of sand.



A beach, showing breakers rolling up upon the sand. The lower part of the wave, as it reaches shallow water, is checked by friction against the bottom, while the upper part rolls forward and breaks on the beach. The smooth beach shows how the action of the waves levels surfaces.

The **Sun** also attracts the water, but less than the moon because it is so much farther away. When the sun and moon are attracting the water in the same direction, the highest, or **spring** tide occurs; but when they are attracting it at right angles to each other, we have the lowest or **neap** tide. The height of the tide varies from a few inches off headlands to sixty feet in inlets with converging shores. The high tide enables ships to pass in and out of harbors that are usually too shallow on account of sand bars that form at their mouths.



Showing how the highest and lowest tides are caused. When the sun and moon are in a straight line with the earth, they attract the water in the same direction, and the highest tides occur. The second view shows the sun and moon at right angles with each other. Since each draws the water toward itself, it is evident that the tide will be lower than when both are attracting the water in the same direction. The result is the lowest or neap tide.

2. **A Bay, Gulf, or Sea**, is a sheet of water partly surrounded by land; as the Red Sea, Hudson Bay, the Gulf of Mexico. Some bays are called **bights**; as the Bight of Benin.

3. **A Strait, Pass, or Passage**, is a narrow channel that connects two larger sheets of water; as the Strait of Gibraltar.

4. **A Sound** is a passage of water or strait not having much depth; as Long Island Sound.



Chart showing the circulation of the waters of the ocean. Study the location and direction of the different currents. Notice that in the equatorial regions the general direction of the currents is eastward. In the temperate regions, it is westward. Compare with the directions of the winds in chart on page 18.

5. An Ocean Current is a stream flowing through the ocean, as the Gulf Stream.

Ocean Currents seem to be mainly caused by the winds. The fact that they move in the same direction as the wind and change their courses when the wind changes,



Echo Lake, in the White Mountains of New Hampshire. A dam was built across the narrow valley with boulders from a glacier which imprisoned the waters and formed this lake, which is fed by springs.

is proof of this. The equatorial currents are driven west by the trade winds. Striking the shores of the continents they are deflected to the northeast and circle about the regions of tropical calms in **whirls** and **eddies**. Notice the direction of these eddies in each hemisphere and compare with the direction of the winds.

Warm and Cold Currents.—Ocean currents are important equalizers of temperature. The equatorial currents move toward the polar regions and are *warmer* than the neighboring waters, while the polar currents moving toward the equator are *colder* than the waters near them. Hence the winds blowing over these currents are either



Valley of the Mohawk, New York.

heated or cooled, and as they pass over the bordering coasts they give to them their own temperatures.

The **Gulf Stream** originates in the great Equatorial Current of the



A sugar plantation in Louisiana. This is also a plain made up of material brought from the mountains by the Mississippi river and its tributaries. When the river overflowed its banks this material was deposited and a plain was gradually built up. Land formed in this way is called alluvial land, or a flood plain. On the map of Louisiana, page 59, you can see how the Mississippi river is using the material which it brings down to build up land at its mouth.

Atlantic. The temperature of its waters, as they pass the Strait of Florida, is often as high as 85° Fahr.

They cross the Atlantic, carrying with them sufficient warmth to give the Orkney Isles, in latitude 59° north, an extraordinarily mild climate.

6. A Harbor is a sheltered arm of the sea where ships may anchor and ride in safety.

INLAND WATERS.

7. A River is a stream of fresh water formed by the union of smaller streams, which are called **branches** or **tributaries**.



Wide river valley in Virginia.

The **source** of a river is the place where it begins. This may be a spring, a lake, or a glacier. Sometimes a river is formed by the confluence of two other rivers as in the case of the Ohio. Its **mouth** is the place where it flows into some larger river, into a lake or the sea.

The **bed** of a river is the land over which its waters flow.

The **right bank** of a river is that bank which would be on our right hand if we were going down the stream. The other is the **left bank**.

8. A river and its tributaries together form what is called a river system.

9. The basin or valley of a river is the country through which the river and its tributaries flow.

As rivers flow from the higher to the lower parts of a country, we can tell, by *observing the course* of the rivers, in what direction the land slopes.

Offices of Rivers and Streams.—Rivers cut natural gutters or drains for carrying the water back to the sea after it has performed its manifold offices.

More clearly to understand the **offices of rivers**, let us follow in imagination the water which feeds them, from the time it comes from the sea as a vapor, until it returns to the sea again through the river.

It has formed clouds which screen the earth from the heat and cold; it has been condensed into rain, and refreshed the land with showers; it has fed the springs and wells; it has worn away the rocks, and gathering from them the materials of which rich and fertile soil is made and spreading it out over their plains; and while it has been doing all this, it has turned mills, driven machinery, floated ships and boats which carried the produce of the land from one place to another.

10. A Lake is a body of water surrounded by land; as Lake Superior, the Great Salt Lake, Lake Victoria.

Review Topics.—The sea and its divisions. What is a bay, gulf, or sea? What is a strait? A sound? What is said of the Gulf Stream? A harbor. A river. The source of a river. The mouth. The bed of a river. What is a river system? What is a river basin? How can you tell the slope of the land? What are the offices of rivers? What is a lake?

XI. THE WINDS.

1. Winds are currents of air. They are mainly caused by one part of the atmosphere becoming hotter or colder than another. Whenever this takes place, the air moves.

Air Movements.—If a fire be kindled in a fireplace or stove, the air in the fireplace or stove is heated, becomes lighter, and is pressed upward by the cooler, heavier air of the room. The air now flows steadily from all parts of the room toward the fireplace or stove.

The rays of the sun are like such a fire. They are always heating the air more in some places than in others. At the Equator and within the tropics they fall vertically, and consequently the air within the tropics is hotter than elsewhere. Hence, like the air near the stove, it constantly rises, being pressed upward by currents of cooler air which are always flowing in from the colder regions north and south.

2. Trade-Winds.—Thus there are two cold currents of air always flowing from the poles toward the Equator. Within the tropics these become **surface-winds**. Owing to the revolution of

the earth from west to east, the current from the north pole becomes a north-east wind, and the one from the south pole a south-east wind. These winds are called, from their value to commerce, or from their constant direction, the **Trade-Winds**.

3. The Counter-Trade-Winds.—The heated air rising within the tropics flows in two currents toward the poles in a direction opposite to that of the Trade-Winds. These return currents are the **Counter-Trade, or Westerly Winds**.

As they proceed toward the poles they gradually become cooler and heavier; they descend, and in the temperate re-

gions becomes **surface-winds**. In the northern hemisphere they come from the south-west, and in the southern hemisphere from the north-west.

North and South Movements of Wind Belts.—All of these wind belts are separated by **belts of calms**. When the sun is north of the equator, all these belts are proportionally further north, and when the sun moves south all the wind and calm belts are proportionally further south.

4. Land and Sea Breezes.—All along the sea-shore during the warm season there is a breeze from the sea by day, and one from the land by night.

The land is heated more readily than the sea, and at night it cools more rapidly.

During the day the air above the land becomes hotter than that above the water. A current of warm air ascends over the land, while currents of cooler air flow in from the sea. Thus we have the **sea-breeze**. During the night the air over the land having become cooler than that over the sea, the current sets toward the sea, and thus we have the **land-breeze**.

5. Monsoons are land and sea breezes on a large scale. Instead of alternating with day and night, they alternate with summer and winter, and blow for months at a time.

The most famous are those of India. The sun's rays beat with intense force upon the desert regions of Asia. The hot air rises in a mighty current, and there is an inrush of cooler air from the Indian Ocean toward the land.

6. Offices of the Winds.—The winds are carriers of heat and moisture. They are the cause of ocean currents (x. 5), and their power drives thousands of ships across the oceans carrying the commerce of every land.



Showing the air movements created by building a fire in the open air. A strong current of cold air sets in toward the fire and the heated air rises and flows outward in every direction. Extensive fires, like the burning of Moscow and Chicago, have been followed by furious tornadoes.



The air movements started in a room containing a heated stove and an open window. The cool air being heavier descends and flows along the floor toward the stove. Here being heated it expands, becomes lighter and rises flowing along the top of the room and out at the top of the window.



A chart of the wind and rain belts. Direction of winds is indicated by arrows. When the arrows point in opposite directions in the same area they indicate a shifting of the winds at different seasons. The area and directions of cyclones is shown by a number of arrows pointing toward the center and curved in the direction in which the wind whirls.

As they blow over the surface of the sea they acquire the temperature of the water, and hence may become either **warm** or **cold winds**. They also gather up vast quantities of vapor which is carried over the land to fall in the form of rain or snow.

Review Topics.—What are winds? Cause? Give an illustration. What portion of the earth is the hottest? How does this heat affect the air? Where does the cold air come from to take its place? The trade-winds. What is their direction? The counter-trades. The sea-breeze. The land-breeze. Monsoons. The most famous? Offices of winds. Change in temperature of winds.

XII. CLIMATE.



Effect of latitude on vegetation. This is in the cold temperate region of Canada. The higher elevations have only a scanty covering of grass and dwarfed trees. But in the lower land there are tall pines and a fine orchard of apple trees. The grass is thick and luxuriant. The fences and houses built of lumber show that timber is abundant in this region.

1. **Climate** is the condition of the air with reference to heat and moisture.

It depends upon latitude, elevation, distance from the sea, the prevailing direction of the winds, and the flow of ocean currents.

2. **Effect of Latitude.**—The nearer the Equator, the warmer the climate, because the Torrid Zone is the region of vertical sun-rays. High temperature follows the vertical rays.

From the Equator toward the poles the climate gradually grows colder, until we reach the regions of perpetual snow and ice. Between these regions and the Torrid Zone lie the Temperate Zones, which have a comparatively moderate climate.

Besides having a higher temperature, the Torrid Zone has a greater rainfall than any other portion of the earth.



Effect of latitude on vegetation. This is a dense jungle in the tropical regions of South America. Here vegetable growth is so rapid that it is difficult to keep the fields cleared and the roads open.

Over this zone hovers the **Equatorial Cloud-Ring**, which is a belt of clouds extending nearly round the earth. It consists of the vapor brought together by the north-east and south-east trade-winds. It causes almost daily thunder-showers along the line of the Equator.

The cloud-ring follows the course of the sun north and south in his apparent journey between the tropics, and brings the **rainy season** to those places which are under it. When it has passed beyond the latitude of any place, the **dry season** of that place begins.

3. **Effect of Elevation.**—The temperature of mountains increases about one degree for every 300 feet of perpendicular ascent.

Illustration.—The heat absorbed by the earth is prevented from escaping by the dense, moist layers of air that rest upon the surface. The air on the mountains being both drier and lighter, the heat received from the sun is quickly lost. For these reasons temperature decreases regularly with elevation.

There is in all latitudes a line of elevation above which the cold is, at all seasons of the year, sufficient to freeze the moisture of the air and form snow. This line is called the **Snow-Line**. The snow-line at the Equator (as shown in the diagram) is 16,000 feet above the sea; so that there are mountains in the Torrid Zone on the tops of which the weather is like that of the Arctic regions. Their slopes have all varieties of climate.

The peak of **Antisana**, in South America, although under the Equator, rises so high as to reach perpetually frozen regions.

In descending these snow-capped mountains in the tropics, we experience in a single day, in a ride of a few hours, all the changes of climate that would be felt in travelling from Spitzbergen to Cuba.

Effect of Mountains on Rainfall.—The cold air above mountain-tops condenses the moisture brought by the winds from the sea, into rain or snow which falls upon the mountains. Thus the mountains feed the rivers.

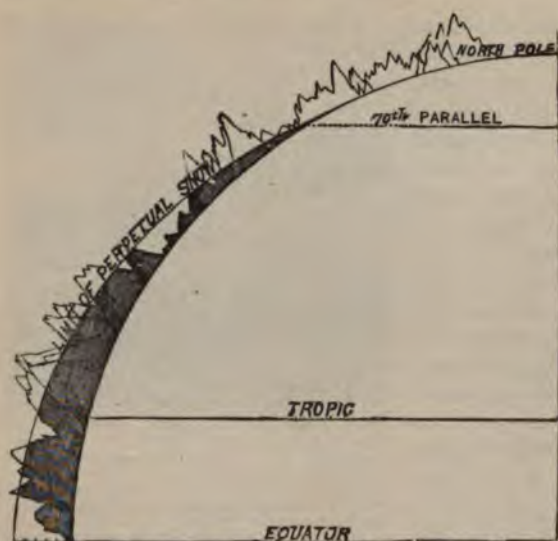
The snow and rain that fall upon the **Rocky Mountains** supply immense volumes of water to the Mississippi. The snow that crowns the **Himalayas** and gives them their name (*abode of snow*), with the rains that descend upon their slopes, feeds the Indus, the Ganges, and the Brahmaputra. The great rivers of South America are fed by the melting snows of the **Andes**.



Effect of latitude on vegetation and animal life. This is a view in Greenland. The vegetation is scanty. There are no trees and the glaciers come all the way down to the sea level. There is no timber to build houses, but the people live in tents made of the skins of animals. These are their summer homes. In winter, they live in stone huts which are partly under ground (see page 92). The dogs seen in the picture are the only domestic animals known to these cold regions.



Effect of latitude on vegetation. This is a view in the warm temperate regions of Southern France. A grove of olive trees is shown many of which are several centuries old. Notice the large branching trunks and the great circumference near the ground. The grass is thicker and the general vegetation more luxuriant than in the last picture.



Effect of latitude on the height of the snow line above the sea level. The snow line is much higher in summer than in winter and higher on the south side of mountains than on the north side. Can you explain this?

If the continents were entirely level, the winds would often sweep across them from sea to sea without letting a drop of water fall upon the land.

By their slopes, also, mountains determine the course of rivers, and therefore are often called **water-sheds, or divides**. Hills and low ridges also frequently serve as water-sheds.

4. Effect of Sea Winds.—The

ocean is warmer in winter and cooler in summer than the land. Countries, therefore, in which the prevailing winds come from the sea have warmer winters and cooler summers than might be expected from their latitude.

The island of **Great Britain** and the province of **Labrador** lie between the same parallels of latitude. Yet such is the difference of climate between them, that while in England the pastures are green all the year, Labrador is so cold as to be almost uninhabitable. In the British Isles the winds come from the ocean. They are loaded with moisture and warmth from the **Gulf Stream**. In Labrador they come from the land, and are dry and cold. Again, the climates of **Oregon** and **British Columbia** are mild, because the prevailing winds come from the Pacific Ocean.



Showing the isotherms of North America. Compare the average temperature along the Atlantic Coast with the temperature in the same latitude on the Pacific Coast. Trace the isotherm of 50° across the Continent and explain the changes in direction.



A mountain above the snow line in tropical South America. Notice the dense growth on the low plain along the river and how it diminishes gradually until at the mountain top you see the region of perpetual snow.

Large bodies of fresh water also, such as the **Great Lakes**, modify the climate. Southern Michigan owes its comparative mildness to this cause. The biting west winds are tempered as they sweep over Lake Michigan.

5. Isotherms (isos, *equal*; thermos, *heat*) are lines drawn through all places having the same average annual temperature. The figures attached to them on the map indicate the average temperature during the year.

The striking **bends** of these isotherms are due to the combined agency of the winds, the great currents of the ocean, the moisture in the air, and the height above the sea-level. The **isotherm of New**



The general direction of isotherms on the earth's surface. The degrees show the average annual temperature. Notice that the lines are very irregular. This is due to elevation, the ocean currents, and to the prevailing winds. Notice that, as a rule, the lines bend northward over the oceans and southward over the land. Can you explain this in the case of the Atlantic Ocean and of North America?

York, soon after leaving the Atlantic coast, is bent northward by the warm Gulf Stream, and comes out on the other side of the Atlantic, nearly 900 miles farther north than New York. Again, the isotherms of the **California** coast are bent sharply southward by the chilling ocean current near that coast.

6. Industries and Climates.—The geographical distribution of agricultural labor is almost wholly determined by climate. There are other industries, however, such as mining and manufacturing, that are, to a certain extent, independent of climate.

Review Topics.—Climate. On what does it depend? Effect of latitude. What is said of the moisture of the torrid regions? The equatorial cloud-ring. What is the effect of elevation? What is the snow-line? What is the effect of sea winds? Compare Great Britain and Labrador. Why have Oregon and British Columbia such a mild climate? What gives Southern Michigan a comparatively mild climate? Isotherms. What is said of the isotherm of New York? How is labor affected by climate?

XIII. PLANTS AND ANIMALS.

1. The earth is clothed with vegetation and animated with living creatures; these are called its **Flora** and its **Fauna**.

2. The **Geographical Range** of a plant is the extent of the earth's surface within which that plant will thrive in the open air. Each kind of plant has its special geographical range; for its growth depends upon **light, heat, and moisture**.

Thus the cinchona tree, the rubber tree, and the pineapple grow only in or near the **Torrid Zone**, where great heat and excessive moisture produce the most luxuriant vegetation; while hemp, flax, and



Arctic or North Frigid Zone: 1. Fur seal. 2. Musk ox. 3. Reindeer. 4. Kodiak bear. 5. Polar bear. 6. Walrus.



North Temperate Zone, North America: 7. American elk. 8. Rocky mountain goat. 9. Rocky mountain sheep. 10. Prong-horn antelope. 11. Bison. 12. Bald eagle. 13. Cougar. 14. Brown pelican. 15. Rattlesnake.



North Temperate Zone, Europe and Asia: 16. Chamois. 17. Red deer. 18. Ibex. 19. Osprey. 20. European brown bear. 21. Hedge hog. 22. Wolf.

and cotton, tea, the fig, magnolia, and mulberry flourish. The middle belt of the temperate zone is called the **grain belt**, or the **cool belt**. Wheat and corn are the leading grains, and the apple, pear, oak, hickory, chestnut, and walnut trees flourish. The belts lying next to the frigid zones are called the **cold belts**. Oats and barley are the principal grains, and firs, birches, spruces, and larches grow.

Between the belts of plant life the lines are nowhere sharply drawn. The plants of one belt are found growing in the belts on either side, though not in such perfection.

5. Frigid Zones.

—The vegetation of these zones consists chiefly of lichens and mosses. None of the great agricultural sta-



Torrid Zone, South America: 23. Three-toed sloth. 24. Condor. 25. Spider monkey. 26. Macaw. 27. Anteater. 28. American tapir. 29. Anaconda. 30. Jaguar. 31. Brazilian caiman.



Torrid Zone, Asia: 32. Tiger. 33. Indian rhinoceros. 34. Active gibbon. 35. Asiatic elephant. 36. Common macaque monkey. 37. Camel. 38. Orang-outang.

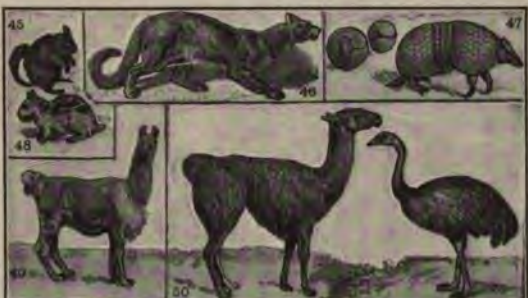


Torrid Zone, Africa: 39. Giraffe. 40. African elephant. 41. Ostrich. 42. Hippopotamus. 43. Klipspringer. 44. Lion.

buckwheat find their home in the **Temperate Zone**.

3. Torrid Zone.—

The richest fruits, the most brilliant flowers, and the greatest variety of useful plants are found in the **Torrid Zone**.



South Temperate Zone, South America: 45. Chinchilla. 46. South American panther. 47. Three-banded armadillo. 48. Viscacha. 49. Vicuna. 50. Guanaco. 51. Rhea.

The following are the most noted: the coffee-tree, the banana, the pineapple, and the palm, the bread-fruit and the mango, India rubber and gutta-percha, the cinchona and the aloe.

4. **Temperate Zones**.—In the Temperate Zones we find the grains (wheat, corn, rye, oats, and barley), with hemp, flax, and many other useful plants. Among the trees are the beech and the chestnut, the elm, oak, maple, and many fruit trees.

Those parts of the temperate zones lying next to the torrid are called the **sub-tropical, or warm belts**. Here rice is the leading grain,



South Temperate Zone, Australia: 52. Wombat. 53. Apteryx. 54. Duckbill. 55. Duckbill rolled into a ball, asleep. 56. Koala. 57. Charopus. 58. Rock kangaroo. 59. Tree kangaroo. 60. Red kangaroo.



Antarctic or South Frigid Zone: 61. Whale. 62. Elephant seal. 63. Penguin. 64. Emperor penguin. 65. Leopard seal. 66. White seal. 68. Petrels.

plants depend? The plants of the Torrid Zone. Name some of the trees and plants peculiar to the Temperate Zones. What is said of the Frigid Zones? Where are the largest animals found? The most useful animals found? The animals of the Frigid Zone. The range of man. Zone? Man?

ples, except perhaps barley, will grow there.

6. **Animals**, like plants, have their geographical range. In the **Torrid Zone** we find the largest and most powerful land animals, as the elephant, lion, and tiger; in the **Temperate Zone**, the domestic animals, as the horse, ox, and sheep; in the **Frigid Zone**, the polar bear, reindeer, and walrus.

Man, unlike the other animals, inhabits every region where food is obtainable.

Review Topics.—What do you mean by the flora of a country? The fauna? What is the geographical range of a plant? Upon what does the growth of plants depend? The plants of the Torrid Zone. Name some of the trees and plants peculiar to the Temperate Zones. What is said of the Frigid Zones? Where are the largest animals found? The most useful animals found? The animals of the Frigid Zone. The range of man. Zone? Man?

POLITICAL GEOGRAPHY.

XIV. MAN.

1. **The Human Family**, which consists of about 1,600 million persons, may be divided, according to the different social conditions of men, into four classes, viz.: **savage, barbarous,**



The savage stage. An African village.

civilized, and enlightened. Some of them live in tents, lead a wandering life, and are sometimes called **nomads.**

They are called nomads (from a word meaning pasturage) because, when the grass in one place has been eaten by their flocks, they move to another. Some are acquainted with agriculture and the simpler arts.

4. Some **civilized** nations, like the Chinese and the Turks, live in towns and cities, understand many arts, have a written language, and have made considerable advancement in intelligence and morality. But their civilization has become stationary, and they have ceased to make progress in the arts of life.

5. **Enlightened** nations, such as the English and the French, carry on commerce extensively, and by constant intercourse with one another improve rapidly. Science and invention belong to them.

They employ machinery on a vast scale. They establish schools and other institutions of learning, and their systems of government are intended to secure the good of all rather than to gratify the will of a few.

6. **Races.**—Men are also classified, according to form, feature, and color, into five great races: the **Caucasian, the Mongolian, the Malay, the American Indian, and the Ethiopian.**

The American Indians and the Malays of southeastern Asia are now thought to be remote branches of the Mongolian race. This reduces the distinct racial types to three—the white, the yellow, and the black.

7. **The Caucasian or White** race had its origin in the western part of Asia. All the nations of Europe, except the Lapps, Finns, Turks, and the Magyars of Hungary, belong to this race.

civilized, and enlightened.

2. **Savages** have no knowledge of the arts.

They live by hunting and fishing, and wear the rudest kind of clothing.

3. **Barbarous** nations have



Barbarism. A home in central Asia.



Civilization. Morocco.

The descendants of Europeans have spread over the world, and now both Americas are governed by them.

The members of this race are the most enlightened and the most enterprising of the races, and are rapidly colonizing, civilizing, and enlightening the world.

8. **The Mongolian or Yellow** race occupies a large part of Asia, and includes the Eskimos of America, and the Lapps, Finns, Samoiedes, Magyars, and Turks. The leading nations belonging to this race are the Japanese and Chinese.

Among the Mongolians are tribes of every grade of civilization, from the Eskimos, who are mere savages, to the progressive Japanese.

9. **The Malay or Brown** race occupies most of the islands of the Pacific, but is giving way before European colonists.

The color of the Malays varies from olive-yellow to black. Some scientists include the Malays among the divisions of the Mongolian race.

10. **The American Indians or Red** race are tall, erect, and somewhat dark.

They were mostly savages, but there are remains of ancient civilization in many parts of the New World, particularly in Mexico and Peru.

11. **The Ethiopian or Black** race is found chiefly in Africa, where it is for the most part in a savage state. Its descendants in America are civilized.

Review Topics.—What is the population of the world? How is the human family divided? Savages. Barbarous nations. Civilized. How do civilized differ from barbarous? Enlightened nations. The races. Caucasians. Mongolians. Malays. American Indians. The Ethiopian.

XV. INDUSTRIAL PURSUITS OF MAN.

1. Man requires **food, raiment, and shelter.** To secure them he resorts to various occupations.

2. **Industrial Pursuits.**—The leading occupations or industrial pursuits are agriculture, fishing, mining, manufacturing, commerce and transportation.



The enlightened stage. A view of New York City from the harbor.

Agriculture includes tilling the earth to obtain useful plants, and grazing, or the raising of flocks and herds.

Fishing includes the taking of fish from fresh and salt waters.

Mining is the digging of valuable ores and minerals from the earth, and refining them.

Manufacturing is the working up of all sorts of raw material, into more useful and valuable shapes.

Commerce includes buying and selling, and the exchanging of the products of one country, or section, for those of another.

Transportation includes the carrying of people and products from one place or country to another.

3. Why Industries Vary.—Many industries depend upon climate, situation, and wants of the country.

In **Louisiana**, for example, the cultivation of the sugar-cane is an important branch of industry.

In **Maine** the cutting and gathering of ice from the frozen lakes and rivers in winter is an important industry.

There are no frozen lakes and rivers in Louisiana; and no cane-fields in Maine, simply because climate forbids. For this reason the industries of these sections differ.

The occurrence of minerals, such as coal, iron, gold, silver, lead, salt and petroleum, largely affect the industries of men.

How Coal and Iron Affect Industries.

Countries abounding in coal and iron are extensively engaged in manufacturing. Coal is necessary both for fuel and for the manufacture of iron and steel machinery. Being heavy substances to transport, manufacturing can be carried on more cheaply where these two minerals are found together.

Review Topics.—What does man require? The leading industrial pursuits. Agriculture. Grazing. Fishing. Mining. Manufacturing. Commerce. On what do industries depend? Compare Louisiana and Maine. How do coal and iron affect industries? What other things are necessary for carrying on manufacturing? Can you tell how such things are obtained?

XVI. RELIGIONS.

1. All people have some kind of religion. The principal forms of religion are—**Christianity, Judaism, Mohammedanism, Buddhism, Brahmanism**, and the religion of the **Guebres** (*Guebres*).

2. Christianity.—Christians believe in the Bible as the Word of God, and in Jesus Christ as the Son of God. All the nations of America, and all those of Europe, except the Turks, profess the Christian religion.

In Asia and Africa there are some Christian communities, and Christianity is gradually gaining converts in both these continents. Only about one-third of the inhabitants of the globe, however, profess the Christian religion.

3. Judaism.—The Jews believe in the Old Testament, but not in the New.

4. Mohammedanism.—The Mohammedans believe that "There is one God, and Mohammed is his Prophet."

The **Koran** was written by Mohammed about 600 years after Christ. It is the Bible of his followers. The Turks, Arabs, and Persians, and many other inhabitants of Asia and Africa, are Mohammedans.

5. Buddhism.—Buddha was the founder of this religion. His followers, who comprise one quarter of the human family, do not believe in any God. They insist on the practice of charity.

Most of the people of Eastern and South-Eastern Asia are Buddhists.

6. Brahmanism.—The Brahmins are very numerous. They are the leading religious sect of India, from which they drove most of the Buddhists by persecution.

They believe that God is in everything—in the shining light, in the moving wind, in the falling rain, in the animals, and of course in man himself. *Juggernaut* is one of their most famous idols.

7. The Guebres or Parsees are the followers of Zoroaster. The sun and fire are with them emblems of the Deity.

They are the so-called **fire-worshippers** of Persia and India.

Review Topics.—Name the principal forms of religion. What do Christians believe? Which three continents are inhabited chiefly by Christians? Do you find many Christian communities in Asia and Africa? What is said of the Jews?

What is the great doctrine of the Mohammedans? What is the Koran? Who wrote it? Name some Mohammedan nations. What is said of Buddhism? Of Brahmanism? What is Juggernaut? The Guebres.



St. Peter's, at Rome. The largest church in the world.

XVII. GOVERNMENTS.

1. Government and its End.—All people require government of some sort; otherwise the strong would oppress the weak.

2. Kinds of Government.—Civilized governments of the present day may be reduced to two kinds—the **Republican** and the **Monarchical**.

3. A Republic is a State in which the President, or head of the government, is elected by the people to serve for a certain time. The laws are made by representatives also chosen by the people.

4. A Monarchy is a government in which the ruler inherits his office and holds it during life.

Of monarchies there are two kinds: **Absolute**, in which the will of the sovereign is the supreme law of the land, and **Limited**, in which the laws are made by representatives of the people.

Russia and Turkey are absolute monarchies; all the other monarchies of Europe are limited.

A monarchy may be a **Kingdom**, or an **Empire**. The sovereign is usually called King, Queen, or Emperor.

The Best Government.—The kind of government best suited to any country depends upon the people who inhabit it. Where the people are of a high degree of intelligence, it is thought best to give every one a share in the government, as in republics and limited monarchies; but to give this right to ignorant persons would only result in confusion and bad government. The simplest form of government is that of the tribe, where all are ruled by the will of a single chief. As people increase in numbers and intelligence they demand a larger and larger share in the government, until at last they take entire control of it.

Review Topics.—The use of government. Kinds. Republic. Monarchy. How many kinds of monarchies? Define them. How are the States of Europe governed?

MAP STUDIES.

THE HEMISPHERES.

General Questions.

—By what meridian circle have we here divided the earth into hemispheres? What circle divides the earth into a northern and a southern hemisphere? Which hemisphere contains most land, the eastern or the western? Which hemisphere contains the most water, the northern or southern?

Continents.—In which zone do you find the greatest proportion of land? What continents do you find in the western hemisphere? In the eastern? What continent lies partly in both? What continents lie wholly north of the Equator? Which are divided by the Equator? By the Tropic of Cancer? Tropic of Capricorn? The Arctic Circle? Through what part of Europe does this circle pass? How are North and South America united? Asia and Africa? What sea and strait separate Africa and Europe? In what direction does North America lie from Europe? From Africa? In what direction is Australia from Asia? From South America.

Islands.—In which ocean are most of the islands of the world? What important group off the western shores of Europe? What islands off the coast of Asia form a great empire? What large islands between Asia and Australia? Which is the largest island in the world? Ans. *Papua*. What large island east of Africa? What group southeast of the United States? What group incloses Bering Sea? Where is New Zealand? Ceylon? What island south of Australia? North?

Capes.—What is the most northerly cape of Europe? The most southerly of South America? The most southerly capes of Africa? The most easterly? The most southerly of India?

Mountains.—Where are the Rocky Mountains? The Andes? The Alps? The Himalayas? The Atlas? In what direction do the mountain ranges of the western hemisphere extend? Those of the eastern?

Deserts.—What are the two great deserts of the world? In which continents are they?



XVIII. THE HEMISPHERES.

1. If we divide the earth into hemispheres, as above, we have what are called the Eastern and Western Hemispheres.

2. The Western Hemisphere contains North and South America, and is called the New World.

3. The Eastern Hemisphere contains Europe, Asia, Africa, and Australia.

Europe, Asia, and Africa are called the Old World, because our ancestors lived there thousands of years before the New World was found by Columbus. The Eastern Hemisphere has nearly twice as much land as the Western.

4. Asia and Africa are connected by the Isthmus

of Suez, and the Isthmus of

Both of these large continents contain important oceans and seas.

5. The earth is divided by the Equator into Northern and Southern Hemispheres.

6. Europe, Asia, and Africa are called the Old World, because our ancestors lived there thousands of years before the New World was found by Columbus.

Their coast lines, gulfs, and bays, which are the Northern Hemisphere.

D



MAP STUDIES.

THE HEMISPHERES.

Oceans.—Which is the largest ocean? How much of the Western Hemisphere does it cover? *The Pacific is remarkable for the number of islands contained in it, and for the belt of volcanoes that encircles it. Between what continents is the Atlantic? The Atlantic is the only ocean which is widely open on the north. Moreover, it reaches, like a long valley, from pole to pole, and forms the only ready channel for the exchange of the polar and equatorial waters.* Which is west of North and South America? Which is east? Which is north of North America? Which is west of Europe? South of Asia? *The Indian Ocean is remarkable for the violent hurricanes which sweep over its waters.* What ocean east of Asia? North? East of Africa? West? South? Where is the Antarctic Ocean?

Seas, Bays, and Gulfs.—Where is the Sea of Japan? The China Sea? Bay of Bengal? Arabian Sea? Red Sea? Mediterranean? Gulf of Guinea? Caribbean Sea? Gulf of Mexico? Bering Sea? Hudson Bay? In which oceans do we find Sargasso Seas? *These are immense areas of the ocean covered with seaweed. The ocean currents move about them in whirls.*

Lakes and Rivers.—What great lakes in Africa? Western Asia? Where are the great lakes of the Western Hemisphere? Where is the Amazon? Mississippi? In what directions do these flow? Where is the Nile? Yenisei? Yang-tse-kiang?

Voyages.—On what oceans would you sail in going from America, in a southeastwardly course, to Australia, thence to California? What oceans would you sail on in a voyage from New York to California, by way of Cape Horn? From New York to China, by way of the Cape of Good Hope? From Cape Horn to the Cape of Good Hope?

Latitude and Longitude.—Where would a ship be if she had no latitude and no longitude? Suppose a ship in latitude 20° north, longitude 160° west, what islands is she near? Suppose a ship in longitude 160° east, latitude 30° south, and sailing westward, what coast is she nearing?

South America by

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civilization, and power. It is the commercial hemisphere.

7. The southern continents are South America, Africa, and Australia. They lie principally in the Torrid Zone.

Compared with the other continents, they are marked by lack of coast indentation, and hence do not afford the same facilities for commerce.

Review Topics.—Hemispheres. What continents are in the Western Hemisphere? What does the Eastern Hemisphere contain? What is meant by the Old World? Which hemisphere contains the most land? How are Asia and Africa connected? North and South America? What makes these isthmuses famous? What continents does the Northern Hemisphere contain? In what zones are they? What is said of their coast lines? Which is the commercial hemisphere? Name the southern continents. In what zones are they?

NORTH AMERICA.

XIX. PHYSICAL FEATURES.

1. **North America** stretches from the Arctic regions to the Torrid Zone, and embraces a great range of latitude, diversity of climate, and variety of vegetable productions.

2. **Surface.**—The continent is divided into three great sections: I. The **Atlantic Plain** and **Appalachian Highland**; II. The **Great Central Plain**; III. The **Pacific Highland** and Slope.

3. The **Atlantic Plain** is the country lying between the ocean and the Appalachian Mountains.



Appalachian Highland—The Blue Ridge at Sapphire, N. C.

MAP STUDIES.—What oceans nearly surround North America? What ocean current on the western coast? The southeastern coast? What is its direction? What current passes toward Newfoundland from the Arctic regions? What bay indents the northern part of the continent? What peninsula east of it? What gulf south of Labrador? What great gulf indents the southeastern coast? What peninsulas nearly enclose it? What channels lead to it?

What is the general direction of the Atlantic coast? Of the Pacific? What large peninsula forms the northwestern extremity of the continent? What strait separates it from Asia? What gulf indents the western coast? What peninsula west of this gulf? What land east of Baffin Bay? Island east of Greenland? What islands between North and South America? Name the four largest. In what zone do they lie? What sea south of them? What island east of the Gulf of St. Lawrence? What isthmus unites North and South America?

Surface.—What does each color on the map show? Is most of the continent high or low? What is the most elevated portion? Where does the chief lowland lie? What elevation of land divides the Central Plain? Name its southern portion. What ocean on the north? Gulf on the south? What highlands near the eastern coast? Their general direction? What region between the Appalachian Highland and the sea? What highland region in the west? What mountain system? What is its direction and extent? What mountains near the Pacific coast?

Rivers and Lakes.—What great river system drains the southern part of the Central Plain? What rivers drain the northern part? Into what do these rivers flow? What lakes are drained by the St. Lawrence? In what direction does this river flow? In what direction do the rivers of the Atlantic Plain flow? Name the chief rivers of the Pacific Slope.

Vegetation and Animals.—Trace the northern limit of trees. What plants grow north of this limit? How far north do barley, oats, and flax

4. The **Appalachian Highland** comprises the ranges known as the Appalachian Mountains. These extend from the Gulf of St. Lawrence nearly to the Gulf of Mexico.



Atlantic Plain near Wilmington, N. C., showing live oaks with Spanish moss.

5. The **Great Central Plain** reaches from the Arctic Ocean to the Gulf of Mexico. It lies between the two Highland regions.

Near the head waters of the Mississippi this plain is crossed by a low ridge, called the **Laurentian Highland**, which divides it into two great slopes. One inclines to the north, and sends its waters into the Arctic Ocean, the other to the south, draining the Valley of the Mississippi. From Minnesota the Laurentian Highland may be traced northward of the Great Lakes toward the Atlantic. The highest point is reached in Minnesota, where the source of the Mississippi is 1,600 feet above the sea-level. The Laurentian Highland is also called The Height-of-Land.

6. The **Pacific Highland** includes the Rocky Mountains and the elevated Plateau lying between these mountains on the one side, and the Sierra Nevada and Cascade Ranges on the other. It extends from the Isthmus of Panama to the Arctic Ocean.



The Great Central Plain in North Dakota.



The Pacific Highland—Mt. Sultan, a peak of the Rocky Mountains in Colorado.

grow in the western part of the continent? In the central? In the eastern? How many degrees farther north do they grow on the Pacific than on the Atlantic side? Judging from this, which side of the continent has the milder climate? Account for the difference. Where does the line pass, south of which there is seldom any snow? Where do we find the whale? The walrus? The seal and sea-otter? The eider-duck? The cod, mackerel, and herring? Sponges, coral, green turtle? On what part of the continent are fur-bearing animals found? The grizzly bear? The elk?





The Pacific Slope from Berkeley, showing the City of San Francisco and the Golden Gate.

Between this Highland and the Pacific Ocean lies the **Pacific Slope**.

7. Rivers and Lakes.—North America is abundantly watered. Its rivers and lakes are among the largest in the world. A very large portion of all the fresh water on the globe is contained in its lakes.

The **Mississippi** and its numerous tributaries traverse the southern slope of the Great Central Plain. The **Missouri** and the Lower Mississippi together form one of the longest water-courses in the world. Its length is more than 4,000 miles.

The **St. Lawrence** drains the Great Lakes and flows into the Gulf of St. Lawrence. The rivers of the eastern slope of the Appalachian Mountains all enter the Atlantic Ocean or the Gulf of Mexico.

Those of the Pacific Highland are the **Yukon**, which flows into Bering Sea and is navigable for 1,500 miles, the **Columbia** and the **Colorado** entering the Pacific, and the **Rio Grande**, which flows into the Gulf of Mexico.

The **Mackenzie**, the **Saskatchewan**, and the **Nelson** drain the northern portion of the Central Plain and flow into the Arctic Ocean or into Hudson Bay.

Review Topics.—Extent of North America, north and south. What gives this continent its great diversity of climate and variety of production? How is the surface divided? Describe the Atlantic Plain. The Appalachian High-

land. The Great Central Plain. By what is it divided? What is said of the two slopes? Describe the Laurentian Highland. The Pacific Highland. The Pacific Slope. What is said of the rivers and lakes of North America? Of the Mississippi and its branches? The St. Lawrence? The rivers of the Appalachian Mountains? Pacific Plateau? Arctic Slope?

XX. CLIMATE, VEGETATION, AND INHABITANTS.

1. Climate and Vegetation.—The climate of North America is varied. The greater part of the continent is in the Temperate Zone. This portion is well watered, and contains extensive forests, grassy plains, and abundant vegetation.

The extreme **northern** part is cold and almost uninhabitable. It is marked by a dwarfed and scanty vegetation, which, on the Arctic shores, consists of nothing but mosses and lichens.

The **southern** part lies near or in the Torrid Zone. It has a tropical climate, an abundant rainfall, and luxuriant vegetation.

Cotton, coffee, sugar cane, and tobacco are here extensively cultivated, and the banana, pineapple, orange, and lemon are found in perfection.

2. Advantages of Position.—North America lies between the two great oceans; it has the Atlantic on the east and the Pacific on the west. Its harbors on the Pacific are midway between the western shores of Europe and the eastern shores of Asia.

With its double sea front, numerous harbors, central position, narrow isthmus, with quick transit across it, North America is well situated for trade with both Europe and Asia.

3. Discovery.—America was discovered by Christopher Columbus in 1492. It was named America after Americus Vesputius, a Florentine and a contemporary of Columbus.

The first land discovered was **Watling Island**, one of the small islands of the West Indies. Other islands of the group were discovered by

Columbus, and he left some of his men on the island of Haiti. Finally, on his third voyage, he discovered the continent itself. Columbus thought that these islands were the **East Indies**, but when



The waters of the Great Lakes pass from Lake Erie to Lake Ontario through the Niagara River, and descend 156 feet at one leap, forming the grandest cataract in the world.

United States.—Two capes on the east? What mountains near the west coast? Where are the Appalachian Mts.? What three bays on the eastern coast? Where is Boston? New York? Philadelphia? Washington? What city on the Ohio? On Lake Michigan? What city near the mouth of the Missouri? Near the mouth of the Mississippi? On the Pacific coast?

Mexico.—What river between Mexico and the United States? What gulf and peninsula on the Pacific coast? What is the principal mountain range? Name one of its volcanoes. What is the capital? What city on the Bay of Campeche?

Central America.—What sea on the east? What ocean on the west? What lake in the southern part? What are the chief cities?

West Indies.—Name the four largest islands of this group. Where is Havana? Port-au-Prince? San Domingo? Kingston? San Juan? Where are the Bahama Islands? The Bermudas?

MAP STUDIES.—What country occupies the northern part of North America? What country north east of British America? South? What country south of the United States? South east of Mexico?

Danish America (belongs to Denmark).—Of what does Danish America consist? Name the capital of Iceland. What towns lie within the Arctic Circle? Where is Cape North? Cape Farewell?

British America.—What is the principal division of British America? What island and province form the other division? What mountain range in the western part? What lakes are drained by the Mackenzie River? The Nelson? What lakes on the southern border of the Dominion of Canada? Where is Cape Race? Cape Sable? Bay of Fundy? Grand Bank? Two islands on the Pacific coast? Where is the Magnetic Pole? At this pole the magnetic needle points towards the center of the earth. What is the capital of the Dominion? What Cities on the St. Lawrence? Where is Halifax?



it was found that they were not, they were called the **West Indies**. Spanish colonies were promptly established in the New World. Cuba and the other Spanish-American republics grew out of these.

4. Inhabitants.—The continent is at present occupied chiefly by Caucasians of various nationalities, and by the descendants of African Negroes.

Both North and South America, with their adjacent islands, were inhabited at the time of their discovery by **Indians**, of whom only the **Peruvians** and the **Aztecs** of Mexico were civilized.

No horses, cows, or other domestic animals were known to the natives, except the hairless dog of Cuba and the llama of Peru.

The Indians roamed over the country from one hunting ground to another, living in wigwams. They rarely cultivated the soil. Some of their tribes are now partially civilized.

The **Arctic** portions of the continent are still in possession of the native **Eskimos**, who live in snow huts, clothe themselves in the skins

of animals, and feed upon fish and the flesh of the bear, seal, and walrus.

5. Political Divisions.—Greenland and Iceland belong to Denmark; The Dominion of Canada, Labrador, and Newfoundland belong to Great Britain; The United States (including Alaska and Porto Rico), Mexico, the Central American States, Cuba, Haiti, and San Domingo are independent republics; other West Indian islands, the Bahamas, and the Bermudas, belong to European nations.

Review Topics.—In what zone is a large part of North America? Describe the vegetation of the extreme northern portion. Of the southern portion. Products of each. How is North America located? Commercial importance. When and by whom was America discovered? Why so called? Account for the name West Indies. Who are the present inhabitants of the continent? Describe the Indians. Eskimos. Name the political divisions of North America.

THE UNITED STATES.

XXI. RANK AND PHYSICAL FEATURES.

1. Position and Rank.—The United States occupies the central and most fertile part of North America. It ranks as one of the greatest powers of the world, and stands first in agriculture, manufactures, and wealth.

2. Extent.—The country extends from the Atlantic to the Pacific Ocean, and from the Great Lakes on the north to the Gulf of Mexico on the south. The distance from ocean to ocean, in a direct line across the country, is 2,100 miles in the narrowest, and 2,800 in the broadest part, and its greatest breadth from north to south is nearly 1,700 miles.

The area of the United States, including Alaska and the outlying islands, is 3,792,886 square miles.

3. Surface.—The surface of the United States consists of three great natural divisions: I. The **Atlantic Plain** and **Appalachian Highland**. II. The **Valley of the Mississippi**. III. The **Pacific Highland** and **Slope**.

THE ATLANTIC PLAIN AND APPALACHIAN HIGHLAND.

4. The Atlantic Plain lies between the sea and the Appalachian Mountains.

It consists of a belt of lowland called the **Coastal Plain**, and an upland region called the **Piedmont**.

The **Coastal Plain** is narrow at the north, but widens toward the south, where it is from 200 to 300 miles in width.

West of this low plain lies the **Piedmont** region, or hill country, which gradually increases in elevation until we reach the foot of the mountains.



View of the White Mts., showing the Presidential Range. The high peak in the center is Mt. Washington. The large building is a summer hotel.



Mount Pisgah, viewed from Battery Park, Asheville, N. C. This section lies in the plateau region west of the Blue Ridge range. The Broad river has cut a wide valley through the plateau.

5. The Appalachian Highland.—Beyond this hill country are the mountain ranges forming the Appalachian system. They lie nearly parallel to one another, and extend in a northeast and southwest direction, from the St. Lawrence nearly to the Gulf of Mexico.

The most prominent of these ranges are the **White Mountains**, the **Green Mountains**, the **Adirondacks**, the **Blue Ridge**, and the **Allegheny Mountains**.

Here and there are elevations of 6,000 feet, but the average height is not more than 2,000 or 3,000 feet. With few exceptions the Appalachians are forest-clad to their summits.

6. The Climate of this division varies with the latitude. In the northern portion there are long and severe winters; in the southern, flowers

are blooming all the year round. The entire region has a moderate but sufficient rainfall.

7. The Products of the Atlantic and Gulf Plains correspond with the climate. When these sections were first settled by white men, they were covered with forests.

The **northern section** produces oats, corn, hay, and potatoes.

In the **central portion** the yield of hardy fruits and grains is abundant.

In the **southern section** we find cotton and rice, indicating a semi-tropical climate, while in large areas of Florida the orange and lemon, banana, and guava flourish.

8. The Natural Advantages of the Atlantic Plain and Appalachian Highland are very great.

The deposits of coal, iron, and petroleum are enormous. Numerous rivers rise in the highlands, furnishing water-power for the manufacturer and highways for commerce in the Coastal Plain. The coast line is much indented, forming excellent harbors.



The Mississippi River and its flood-plain at Winona, Minn., looking up the river. Notice the drawbridge which is drawn to permit steamboats to pass and the jetty on the left-hand side to deepen the channel and prevent the banks from being washed away. Above notice the several branches, all of which are a part of the river. The opposite shore is Wisconsin.

THE VALLEY OF THE MISSISSIPPI.

9. Valley of the Mississippi.—Crossing the wooded heights of the Appalachian ranges, we enter a vast shallow basin called the Valley of the Mississippi. It extends from the Appalachians to the Rocky Mountains, and from the Gulf of Mexico to the **Height of Land**. It occupies nearly one-half the area of the United States.

If we look at the map we shall see that the Mississippi receives the waters of large rivers, such as the **Ohio** and the **Tennessee** on the east, and the **Missouri**, the **Red**, and the **Arkansas** on the west. This clearly shows that the lands on either side of the river form the sloping sides of a great valley.

A large portion of the upper Mississippi Valley consists of **prairies**. Some of them are rolling, others as level as the sea. Most of them are treeless. These prairies were once covered by a **great shallow sea**; the fine soil was washed down from the mountains and deposited as sediment on the sea-bottom. A slow uplift of the continent afterward left this region dry land.

Before the prairies were cultivated they were covered in springtime and summer with grass and flowers. Boundless fields of wheat and corn now occupy large portions of them.

Westward of the Missouri and the 98th meridian are the **Great Plains**, a plateau extending to the Rocky Mountains. Their soil is covered, when in a natural condition, with nutritious grasses on which many thousand hogs and cattle feed. These plains are the great **grazing region** of the United States.

10. Climate.—The northern section has a temperate climate, with hot summers and cold winters. The climate of the southern portion is semi-tropical.

The soil is of great depth and fertility. It is composed for the most part of fine sediment left by the waters that once overflowed the valley; but in the northern half there is much coarser material left by the glacier that once overspread the northern part of the continent.

The climate of the Great Plains is remarkably dry. Agriculture depends, in many areas, upon irrigation; that is, distributing water over the fields by means of channels leading from reservoirs.

11. The Products of the Mississippi Valley are similar to those of the Atlantic Slope in corresponding latitudes. The leading products are cotton, sugar, hay, grain, tobacco, lumber, and minerals. The Mississippi Valley is the chief **agricultural region** of the country.

12. The Natural Advantages of this region are unsurpassed.

Its **soil** is unrivalled in depth and fertility.

Its **grazing lands** are among the most extensive in the world.

It contains some of the most valuable **timber lands** in the country.

The **Great Lakes** are on the northern borders of this region. They are really inland fresh-water seas. On their

waters many thousands of vessels carry on an active internal commerce.

The **Mississippi** and its **tributaries** drain the entire valley, and furnish water-routes whereby the products of one portion of this region may readily be transported to another. The lumber and wheat of Minnesota and Wisconsin are carried upon the Mississippi down to New Orleans, a distance of more than 2,000 miles; while the sugar, rice, etc., of the Gulf States may be transported upon the same waters to the States far away to the north.

THE PACIFIC HIGHLAND AND SLOPE.

13. The Pacific Highland embraces the **Rocky Mountains**



On the Great Plains. Scene on a Texas ranch. The cowboys have just roped a steer in order that they may examine the brand, or mark. Each ranch owner has his own brand.

and the **Sierra Nevada** and **Cascade ranges**, with the great elevated plateau lying between them.

The **Rocky Mountains**, with their snow-capped peaks, border the plateau on the east. They form the loftiest water-shed in the United States. Here are found the head waters of the longest rivers that flow eastward into the Mississippi, and westward into the Pacific.

The **Plateau Region** has an average elevation of 5,000 feet above the sea level, and is from 300 to 800 miles in breadth.

It is traversed by numerous ridges and mountain chains and is naturally divided into three regions, viz., the **Plain of the Columbia** on the north, the **Plateau of the Colorado** on the south, and between these the **Great Basin**, in which is the Great Salt Lake.

The **Sierra Nevada** and **Cascade ranges** form the western

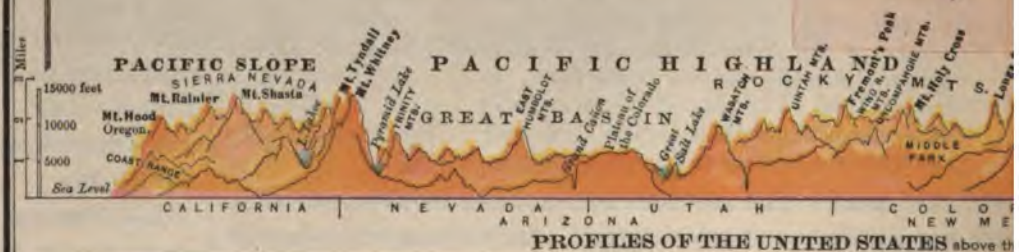
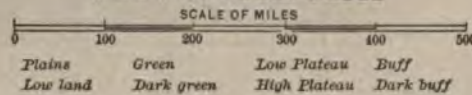
PHYSICAL UNITED STATES.

Rivers and Lakes.—Name the most important river of the United States. What is its chief tributary? *Steamers ascend the Mississippi to St. Paul, 2,200 miles from its mouth. The Missouri is navigable nearly to the "Great Falls," about 4,000 miles from the mouth of the Mississippi. This is a greater distance than from New York to Liverpool.* What is the chief eastern tributary of the Mississippi? To what States does it afford water communication? *The rivers of the Atlantic slope are navigable generally through the dark-green or lowland belt.* Where is the Yellowstone river? The Platte? Arkansas? Red? Rio Grande? What River enters the Gulf of California? *It is famed for the cañons through which it flows. They are gorges through the rock, some of which are 6,000 feet deep.* Name the two most important rivers of California. What river breaks through the Cascade Range and enters the Pacific Ocean? Name the Great Lakes. Which is the largest? On the map find a State nearly equal to it in area? Which is the smallest of the lakes? On the map find a State that we compare in size to Ontario? Which of the Great Lakes is wholly within the United States? To what country do the others partly belong?

In what zone does the United States lie? The Tropic of Cancer is in lat. $23\frac{1}{2}^{\circ}$ N. How far distant from the tropical regions is the southern point of Florida? Land winds in winter being cold, and sea winds warm, which must have the milder winter weather, the northeastern corner of the United States or the northwestern?

UNITED STATES

PHYSICAL MAP



Vegetation.—Name the grains raised in the Mississippi Valley

boundary of the Plateau. They are really one chain, following the coast at a distance of from 100 to 150 miles.

Many of the peaks of the Rocky Mountains and the Sierra Nevada rise to the height of over 14,000 feet.

14. Climate.—The climate of the Pacific Highland is marked by extreme dryness. It has but little rain, except on the mountains, which are in the path of the westerly winds.

Owing to the absence of moisture, the air is rapidly heated and rapidly cooled. Often the temperature at noon will be 70° or 80°, and at sunrise below freezing-point.



On the Pacific Highland—The Navajo District, showing the effect of the dry climate on vegetation.

15. Resources.—This is one of the great regions of the world for the production of the precious metals. In gold it ranks next to Australia; in silver it is second only to Mexico.

The only natural vegetation of parts of the Plateau Region are the sage brush in the north, and the cactus in the south.

16. The Pacific Slope.—Leaving the Plateau Region and crossing the Sierra Nevada and Cascade ranges, we find ourselves upon the Pacific Slope, which extends from the summits of these mountains to the Pacific Ocean.



Pasadena Valley, California; Mount Lowe from Monk's Hill

It includes the low valleys of California, Oregon, and Washington, and the Cascade Mountains and the Coast Range that borders the Pacific.

17. The Climate of the Pacific Slope, owing to the prevailing winds from the sea, is much milder than that of corresponding latitudes on the Atlantic Slope. The summers are cooler, and the winters so mild that many visitors spend the winter there.

The rains occur during the winter, which is known as the rainy season; the summer is called the dry season.

18. The Products and Resources of the Pacific Slope are extraordinary.

The mines of quicksilver, gold, and petroleum are of great value.

Vegetables and fruit attain a size that is almost incredible; and the yield of wheat is sometimes 50 bushels to the acre. Magnificent forests cover the mountain slopes. Trees are found measuring 40 feet in diameter. Facing the Asiatic continent, moreover, the Pacific Slope enjoys unrivalled advantages for carrying on commerce with the populous nations of China and Japan.

Review Topics.—Location and rank of the United States. What is the greatest distance from east to west? The least? How is the surface divided? Describe each natural division—surface, climate, products. What are the natural advantages of the Atlantic Plain? Describe the Mississippi Valley; extent; prairies; plains. Climate of the northern portion; southern. The plains. The products.

How can Minnesota and the Gulf State exchange products? Describe the Pacific Highland. The Rocky Mountains. The Plateau region. Width. How divided by mountains? The Sierra Nevadas. Height of peaks. The climate. The mineral wealth. The natural products. Describe the Pacific Slope. Compare its climate with that of the Atlantic Slope. Describe the summers and winters. The mines. Fruits and vegetables. Wheat. Forests. Commercial advantages.

XXII. STATES.—POPULATION.

1. The United States consists of forty-six states, one district, four territories, and the islands annexed in 1898.

2. Grouping of States.—The following is a convenient grouping of the states and territories.

New England States.

MAINE,	VERMONT,	RHODE ISLAND,
NEW HAMPSHIRE,	MASSACHUSETTS,	CONNECTICUT.

Middle Atlantic States.

NEW YORK,	DELAWARE,	WEST VIRGINIA,
NEW JERSEY,	MARYLAND,	(District of Columbia).
PENNSYLVANIA,	VIRGINIA,	

Southern States.

NORTH CAROLINA,	ALABAMA,	ARKANSAS,
SOUTH CAROLINA,	MISSISSIPPI,	TENNESSEE,
GEORGIA,	LOUISIANA,	OKLAHOMA.
FLORIDA,	TEXAS,	

Central States.

KENTUCKY,	KANSAS,	WISCONSIN,
OHIO,	IOWA,	MINNESOTA,
INDIANA,	NEBRASKA,	NORTH DAKOTA,
ILLINOIS,	MICHIGAN,	SOUTH DAKOTA.
MISSOURI,		

Rocky Mountain and Pacific States.

COLORADO,	NEVADA,	CALIFORNIA,
MONTANA,	IDAHO,	OREGON,
WYOMING,	UTAH,	WASHINGTON,
New Mexico Territory, Arizona Territory, Alaska Territory.		

Island Regions.—Hawaii, the Philippines, Porto Rico, Guam, one of the Ladrões, Wake Island, and Tutuila and Manua, of the Samoan group. Hawaii is organized as a territory.

The States may also be grouped as Atlantic, Gulf, Inland, Lake, and Pacific States. We sometimes speak of the "Valley States," meaning those in the Mississippi Valley; and the "Cotton States," meaning those in which cotton is the principal product.

3. Early Colonies.—The first English colony was established at Jamestown, Virginia, in 1607. In 1620 the Pilgrims founded Plymouth Colony in Massachusetts. Soon afterward Maryland was settled by English Roman Catholics, and Pennsylvania by Quakers.

The Dutch had settlements in New York, the Swedes in New Jersey, and the Danes in Delaware; but about 1664 these colonies became subject to the English, who proceeded to establish and acquire others, until their colonies numbered thirteen.

These were Virginia, Maryland, Georgia, North Carolina, South Carolina, Delaware, Pennsylvania, New Jersey, New York, Massachusetts, Rhode Island, New Hampshire, and Connecticut. They are often called the "Old Thirteen."

In 1776 they declared themselves free, sovereign, and independent States, and after a seven years' war their independence was acknowledged by Great Britain. They adopted a constitution in 1789, and established the government of the United States of America.

4. Acquisition of Territory.—Additional territory has been acquired by the United States, mainly by purchase. By these additions the area of the country has been increased fourfold.

In 1803 **Louisiana**, including the western half of the Mississippi Valley, was purchased from the French.

In 1819, **Florida**, which had been settled at St. Augustine by Spaniards in 1565, was purchased from Spain.

In 1845 **Texas**, having previously revolted from Mexico and established her independence, was annexed to the United States.

In 1848 **California**, with the territory lying between it and the Rocky Mountains, was ceded to the United States by Mexico. In 1853 the southern portions of **Arizona** and **New Mexico** were purchased from Mexico.

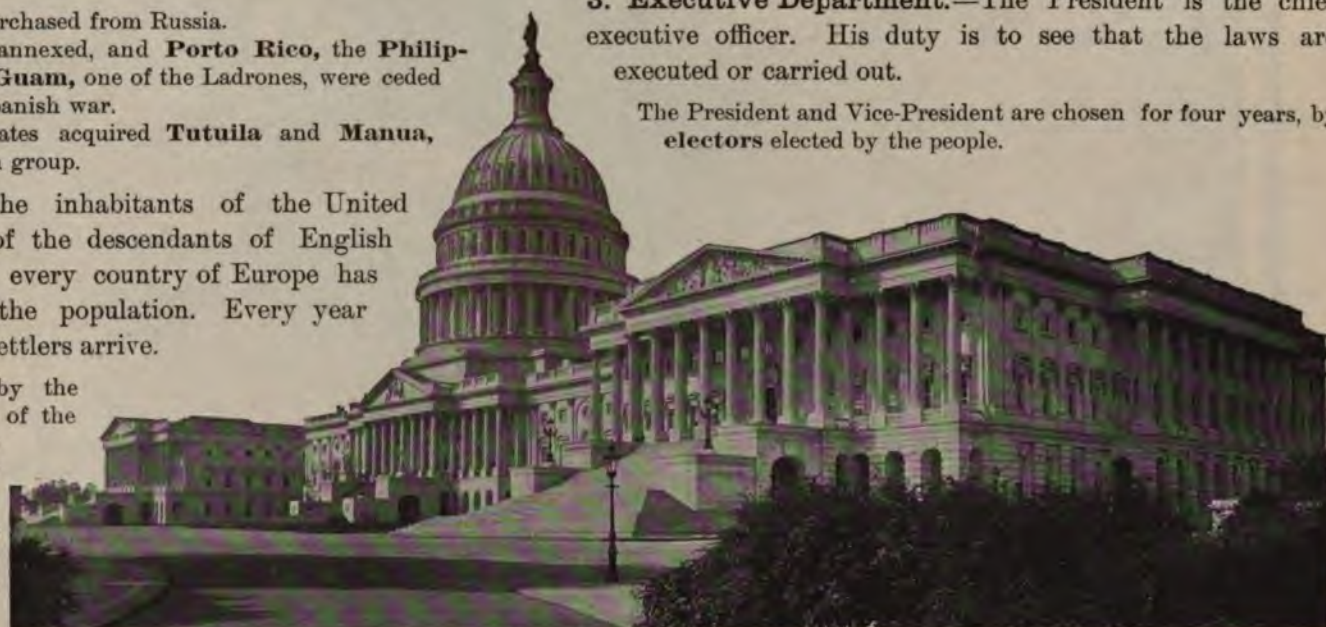
In 1867 **Alaska** was purchased from Russia.

In 1898 **Hawaii** was annexed, and **Porto Rico**, the **Philippine Islands**, and **Guam**, one of the Ladrões, were ceded by Spain after the Spanish war.

In 1900 the United States acquired **Tutuila** and **Manua**, islands of the Samoan group.

5. Inhabitants.—The inhabitants of the United States consist largely of the descendants of English colonists. But nearly every country of Europe has contributed to swell the population. Every year large numbers of new settlers arrive.

A census is taken by the general government of the United States once every ten years. By the census of 1890, the population was about 63,000,000; by the census of 1900 it was 76,303,387.*



The National Capitol.

6. The largest cities in the United States are:

More than 4,000,000 inhabitants—New York City.

More than 1,000,000—Chicago and Philadelphia.

More than 500,000—St. Louis, Boston, and Baltimore.

More than 300,000—Cleveland, Buffalo, San Francisco, Cincinnati, Pittsburg, Milwaukee, Detroit, Washington, and New Orleans.

More than 200,000—Newark, Jersey City, Louisville, and Minneapolis.

More than 100,000—Providence, Indianapolis, Kansas City (Mo.), St. Paul, Rochester, Denver, Toledo, Columbus, Worcester, Syracuse, New Haven, Paterson, Fall River, St. Joseph, Omaha, Los Angeles, Memphis, Scranton, and Seattle.

Review Topics.—How many States and Territories in the United States? Divisions. Which are the "Valley States"? The "Cotton States"? The first English colony. The Plymouth Colony. The Roman Catholics. The Quakers. The Dutch. The Swedes. The Danes. What nation acquired possession of the Dutch, Swedish, and Danish colonies? What were the "Old Thirteen"? What occurred in 1776? How was Louisiana acquired? Florida? Texas? California? Arizona? Alaska? Hawaii? Porto Rico? The Philippine Islands? What was the population in 1890? In 1900? What city has more than 4,000,000 inhabitants? Which had more than 1,000,000? Between 200,000 and 500,000? Between 100,000 and 200,000?

XXIII. GOVERNMENT.

1. Government.—The Departments of the United States Government are three: the **Legislative**, **Executive**, and **Judicial**.

2. The Legislative Department, or Congress, consists of the **Senate** and **House of Representatives**.

Each State is represented by two Senators from each State, elected for six years.

The President is the presiding officer of the Senate.

Excludes possessions, except Hawaii.

The **House of Representatives** consists of members chosen by the people to serve two years. Each State sends one representative for every 193,291 inhabitants.

One of the members of the House of Representatives is elected to preside at its meetings, and is called the **Speaker**.

The **Laws** are made by Congress, with the approval of the President.

If the President does not approve of any bill passed by Congress, he may veto (refuse to sign) it, but it may still become a law by a two-thirds' vote of each House.

Congress holds its sessions in the Capitol at Washington.

3. Executive Department.—The President is the chief executive officer. His duty is to see that the laws are executed or carried out.

The President and Vice-President are chosen for four years, by electors elected by the people.

4. The Judicial Department comprises the federal courts. The **Supreme Court** consists of a **Chief-Justice** and eight **Associate Justices**, appointed by the President, with the consent of the Senate.

5. State Government.—Each State has a government similar to that of the United States.

It has a **Legislature** consisting of two houses, a **governor** elected by the people, and a **supreme court**. Neither Congress nor the legislature of a State has the right to make any law contrary to the Constitution and laws of the United States.

Review Topics.—The departments of the Government. The Legislature. Who presides in the Senate? Of what does the House of Representatives consist? Presiding officer. What body makes the laws? The President's veto. Who is the chief executive officer of the United States? Term of office. How chosen? The Supreme Court. How is each State governed?

XXIV. INDUSTRIES.

1. Manufacturing now excels all other industries of the United States in the value of its products.

Our great **factories** are chiefly in the cities east of the Mississippi and north of the Ohio and Potomac rivers.

The ten leading manufacturing industries are as follows:

- | | |
|---------------------------|----------------------------------|
| 1. Iron and Steel goods. | 6. Clothing. |
| 2. Machinery and Engines. | 7. Flour and Meal. |
| 3. Preserved Meats. | 8. Paper, Books, and Newspapers. |
| 4. Lumber Products. | 9. Leather and Leather Goods. |
| 5. Textile Goods. | 10. Cars and Wagons. |



boundary? What country forms the rest? What ocean on the west?

What States border on the Atlantic? On the Gulf? The Great Lakes? What partly bounded by the Mississippi by the Missouri? Partly bordered by the Ohio? The largest smallest?

Which States are most favorably situated for commerce

2. Agriculture is the occupation of about one-fourth the people of the United States, and its products rank next to manufactures in value. The leading products north of the parallel of 36° north are corn, wheat, oats, rye, barley, hay, potatoes, flax, hemp, and tobacco.

South of this parallel is the region of cotton, sugar, and rice.



Domestic Commerce: Boats loaded with grain on the canal at Williamsport, Maryland. Notice the Potomac River and railroad tracks.

3. Grazing is the third important industry. In Texas and the States of the Great Plains, cattle and sheep are raised in vast numbers. Other grazing products are the **pork** and **wool** of the Central States, the **wool** of the Pacific States, and the **milk**, **butter**, and **cheese** of the Middle Atlantic States.

4. Mining is a growing industry. The **precious metals** and **copper** are found mainly in the Rocky Mountain and Pacific States; **coal** and **iron** in the Appalachian and central regions.



Domestic Commerce: A steamboat being loaded with cotton on the Yazoo River, one of the tributaries of the Mississippi.

5. Lumbering is a greater industry in the United States than in any other country. It produces over five hundred million dollars annually. The chief **forest regions** are in the Pacific States, the Lake States, and in the Southern States.

6. The Fishing interests of the country are important. They engage the attention mainly of **New England**, the **Chesapeake Bay States**, the **Lake States**, and the **Pacific States**.

7. Domestic Commerce.—The products and industries of the different sections of the country differ widely. This gives rise to a large and growing domestic commerce. This commerce is greatly aided by excellent transportation facilities.

The **Mississippi**, with its 33 navigable tributaries, affords a cheap waterway for trade between the different States of the Mississippi Valley and connects them with the Gulf. The Mississippi is now connected with the Great Lakes by the Michigan and Illinois Canal. The **Great Lakes**, with the Welland and other Canadian canals and the St. Lawrence, form a second great water route.

The **Erie Canal** connects the Great Lakes and the Hudson River, and forms a third water route.

By means of these and a vast system of railroads the different parts of the country readily exchange products.

8. The Foreign Commerce of the United States is very large, and is steadily growing. We import about \$1,000,000,000 worth of merchandise, and export over \$1,500,000,000. This means that we produce a great deal more of some things than we need for our own use.

The value of our **imports** in 1899 was only fifty million dollars more than in 1889, and the value of our **exports** was nearly six hundred million dollars more than in 1889.

Our leading **exports** are cotton, breadstuffs, petroleum, meat, provisions, tobacco, and iron and steel ware. The demand for our manufactured products is steadily increasing.

Our **largest customers** are Great Britain, Germany, France, the West Indies, Holland, and Canada.

By far the greater part of our exports goes to Great Britain. A very important trade is carried on with the West Indies and South America in flour, lumber, and manufactures. Germany buys much of our petroleum.

The leading **imports** are tin, iron, and dry goods from England; wines, dry goods, and silks from France; teas and raw silk from China and Japan; coffee from Brazil and Java; sugar and fruits from the West Indies; wool from Australia; hides and rubber from South America.

Review Topics.—What are the five most important industries of the United States? Where is each carried on? What is said of grazing? Mining? Manufacturing? Fishing? Domestic Commerce? The great commercial water routes? The Mississippi trade? The Erie Canal? The Canadian canals? Describe other means of transportation. The foreign commerce of the United States. Exports. Imports.



Domestic Commerce: A whaleback steamer passing from Lake Superior to Lake Huron through the "Soo" Canal.

MAP STUDIES.—Between what parallels do the New England States lie? Which is the largest? The smallest?

Maine.—What is the general slope of Maine? What lakes have outlets to the sea through the Penobscot? Kennebec? Androscoggin? The St. John? What large island on the coast? What bays? Cape? What city on Casco Bay? Where is Bangor? Bath? Lewiston? Biddeford? What and where is the capital?

New Hampshire.—What mountains in the northern part of this State? Name the largest lake in this State. Describe the course of the Connecticut River. Where is Concord? Nashua? Manchester? Portsmouth? Dover? What is the capital?

Vermont.—Near what parallel is the northern boundary of this State? What mountains traverse this State from north to south? Through what rivers do the waters of Lake Champlain reach the sea? What lake in the northern part of the State? What rivers in Vermont are tributary

to the Connecticut? Montpelier? Rutland? St. Albans? Brattleboro? What is the capital?

Massachusetts.—What part of the State is mountainous? Which are the principal peaks? What part of the State is drained by the Connecticut? By the Merrimac? Name the capes. What bay on the eastern coast? Southern coast? What is the capital? Where is Lowell? Lawrence? Salem? Lynn? Springfield? Worcester? Pittsfield? Fitchburg? Fall River? Taunton? Cambridge? Northampton?

Rhode Island.—What bay in the south-eastern part of the State? What city at its head? What point on the coast? What is the capital? Where is Newport?

Connecticut.—In what direction does the surface slope? What cross the State? Into what do they flow? What and where is the? Where is Middletown? New Haven? New London? Meriden? New Britain? Danbury?

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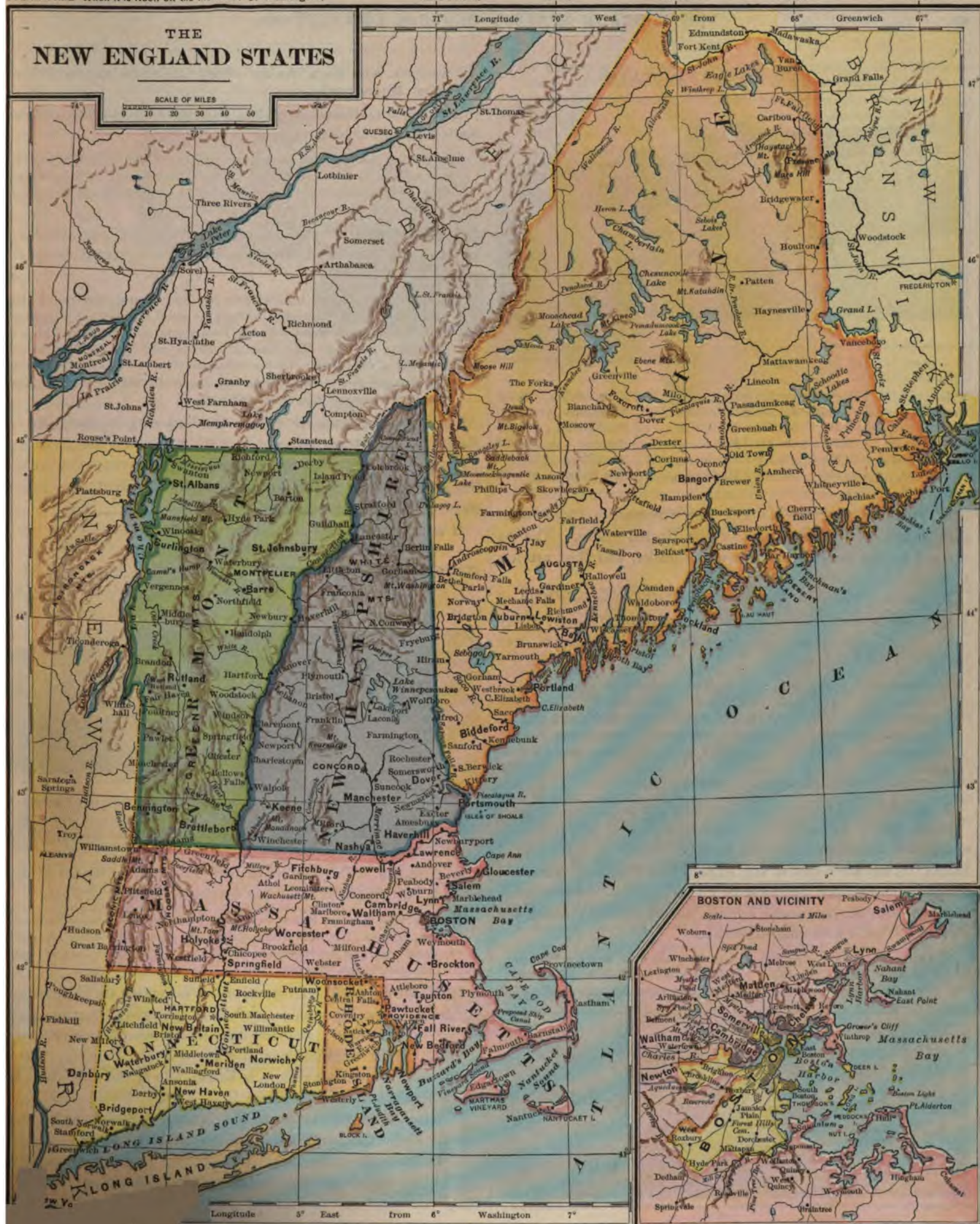
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THE NEW ENGLAND STATES

SCALE OF MILES

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XXV. NEW ENGLAND STATES.



The rocky New England coast at Marblehead, Mass.

STATE.	Area in Sqr. Miles.	Population, 1900.	Capitals.	Chief Cities and their Population.
Maine.....	33,040	694,466	Augusta.....	Portland..... 50,145
New Hampshire..	9,305	411,588	Concord.....	Manchester... 56,987
Vermont.....	9,565	343,641	Montpelier.....	Burlington... 18,640
Massachusetts...	8,315	2,805,346	Boston.....	Boston..... 560,892
Rhode Island....	1,250	428,556	Providence.....	Providence... 175,597
Connecticut.....	4,990	908,420	Hartford.....	New Haven... 108,027

1. Position and Area.—The New England States are situated in the northeastern part of the United States. The six taken together are not as large as Nebraska, and they are less than one-third the size of Texas.

2. Coast.—The coast line of these States, especially that of Maine, has a very jagged appearance, and a number of rocky islets fringe the shores—sure signs that there is no lack of deep water and good harbors.

An **irregular coast** like that of New England is the result of a sinking of a rocky coast. This causes the water to flow up the valleys and the mountain ridges to become capes and headlands. A **regular coast line** on the other hand, like that of the South Atlantic Plain, is a result of a rising of the land. The level ocean bed becomes the coast, and is usually flat and sandy. Good harbors on such coasts are usually at the mouths of rivers.

3. Surface.—The surface of New England is rugged and hilly. These States are traversed from northeast to southwest by mountains which extend from Canada nearly to Long Island Sound. They are a part of the Appalachian System. Name the ranges. The eastern section is an upland broken by a succession of hills, with an occasional solitary mountain rising above the plateau. This is a **Piedmont** section.

The mountains were once higher than they are now, and the Piedmont hills were once mountains, but they were gradually worn away. Some mountains, like Mount Monadnock, were of harder rock, and so



The New England Plateau in Massachusetts, showing the Connecticut river below Mount Holyoke.

were not worn down like the others. Mountains such as the called **Monadnocks**.

Along the southeastern part of Massachusetts is a belt of lands, the only coastal plain in New England.

The **White Mountains**, after those of North Carolina, are the east of the Rocky Mountains. Mount Washington, in New Hampshire, is 6,293 feet high; Mount Mitchell, among the Black Mountains in North Carolina, is only about 400 feet higher.

4. Lakes and Rivers.—A marked feature of New England is the great number of **fresh-water** lakes scattered over the surface.

These were made by an ancient **glacier** which once overspread the entire region. As it moved toward the sea it scoured out valleys, built dams across them with the rock-waste and boulders dropped in melting. The mass of material left by a melting glacier is called a **moraine**. These moraines often dammed up the rivers and changed their courses, thus forming **waterfalls** and lakes, altering the appearance of the country.

The most important rivers are the **Connecticut**, navigable to Hartford; the **Merrimac**, which, with its tributaries, furnishes water-power for more factories than any other river in the New England; the **Penobscot**, navigable to Bangor; and the **Kennebec**, navigable to Augusta.

If we consider how close to the sea the hilly Piedmont approaches, we shall understand that the streams which



View at Manchester, N. H., showing factories along the Merrimac river.

flow thence to the sea must have a great descent, with rapid falls, affording abundance of **water-power**. The streams have contributed to make New England the leading manufacturing district of the country.

5. Climate.—The winters of New England, by reason of latitude, are long and cold; the summers are short and hot.

The nearness of these States to the sea has little effect upon the climate, because the prevailing winds are from the land. The current from the Arctic Ocean flows near the coast, so that the winds are always raw and chilly.

6. Resources.—The most important **minerals** are the granite of Maine, New Hampshire, and Massachusetts; the slate of Vermont; and the red sandstone of Connecticut. Metallic ores in workable quantity are rare.

The **soil** in the river valleys is fertile, but in the upland is not well adapted to agriculture.

The numerous rapid rivers, the forests, fisheries, and harbors shape the **leading occupations** of this section.

7. Industries.—The inhabitants of New England are engaged in manufacturing, commerce, shipbuilding, stone quarrying, and fishing.

the border at **Kittery**, in Maine, is one of our finest navy yards.

Dover, Keene and Berlin have good water-power, and manufacture cotton goods. **Hanover** is the seat of **Dartmouth College**.

5. Vermont.—Vermont (vert, green; mont, mountain), so called from the Green Mountains which traverse it, is an inland State.

It is a fine wool-growing, stock-raising, and dairying country, and is specially famed for its horses. In the production of maple sugar it excels all other States. Its manufactures are steadily increasing, especially those of lumber, paper, and textiles.

Its quarries of marble, granite, and slate are extensive and valuable.

6. Cities.—**Burlington**, the largest city, is on Lake Champlain. It is extensively engaged in the lumber trade.

Montpelier is the capital. **Barre** and **Hardwick** are noted for their granite works, and **West Rutland** and **Proctor** for marble. The largest scale manufactory in the world is at **St. Johnsbury**.

7. Massachusetts.—Massachusetts, the "Bay State," is the wealthiest and of the New England ranks first in the manufacture of boots and shoes, rubber, cotton and woolen goods. In commerce and wealth it is one of the most prominent.



Making solid silverware at the Gorham works, Providence, Rhode Island. 1. Showing steel rollers which press the silver bars into sheets.

8. Cities.—**Boston** is the capital of Massachusetts, and the largest and most important city of New England. It is distinguished for its places of historic interest.

Boston has a splendid harbor and is the center from which the chief railroads of New England radiate. Its imports rank in value next to those of New York. It receives cotton, wool, hides, coal, and other



View of Boston, showing the State Capitol, the famous Boston Common, and Tremont Street, a leading business thoroughfare. On the Common next to the street are the entrances to the subway.

The largest manufacturing establishments for cotton and woolen goods are at **Lowell, Fall River, and New Bedford**. **Lawrence** leads in woolens. **Lynn, Haverhill, and Brockton** lead in boots and shoes; **Worcester** in textile machinery, wire rope, and woolens.

At **Springfield** is an armory of the United States where rifles for the public service are made. **Holyoke** manufactures paper and textiles. **North Adams** and **Pittsfield** make textiles, paper, and machinery. **Taunton** is noted for the manufacture of locomotives, cotton, machinery, and Britannia ware. **Gloucester** is the chief fishing port of the United States.

9. Rhode Island.—Rhode Island is the smallest, but one of the most densely populated States. It is largely engaged in manufacturing cotton and worsted goods, machinery, firearms, jewelry, silverware, and rubber goods.

10. Cities.—**Providence**, the second city in New England, and also the State capital, has a large commerce and ex-



2. Showing how the sheets are hammered into vessels.



3. A workman decorating a silver vase.

on one of the New England, summer resort.

It is the seat of **Brown University**. **Newport** is beautifully situated finest harbors in and is noted as a **Pawtucket** has the oldest cotton mill in the United States. It manufactures textiles and thread; **Woonsocket**, worsteds; and **Central Falls**, cottons.

MAP STUDIES.—Between what parallels do these States lie? Which State is most mountainous? Which border on the Great Lakes? **New York.**—What mountains in this State? What lakes form part of the boundary? What rivers? What celebrated falls?

Describe the course of the Hudson. The Genesee. The Black. What lakes are drained by the Oswego River? How do their waters reach the sea?

What lake separates New York and Vermont? Where is Lake George? Trenton Falls? What two islands belong to New York (see small maps)? Where is New York City? Name its divisions. Where is Yonkers? Poughkeepsie? What and where is the capital? Where is Buffalo? What canal connects Buffalo and Albany?

New Jersey.—What portion of this State is mountainous? What river forms the western boundary? What bay the southern? Where is

Sandy Hook? What cape at the southern extremity of the State? What and where is the capital? Describe Newark; Jersey City; Paterson.

Pennsylvania.—What parallel forms the northern boundary? What river the eastern? What lake borders the northwestern corner? What large river crosses this State and flows into Chesapeake Bay? What part of the State is traversed by mountain ranges?

Through what part of the State does the Allegheny River flow? The Monongahela? Where do they unite? What two cities at their junction? Where is the Delaware Water-Gap? Where is Philadelphia? What is said of Harrisburg? Scranton? Reading? Lancaster? Erie?

Routes of Travel.—How would you go by steamboat from New York to Albany? From New York to Philadelphia? How do steamers enter the Sound from New York? What is the East River?

MIDDLE ATLANTIC STATES

NORTHERN DIVISION

SCALE OF MILES

10 20 30 40 50 60 70 80 90 100



11. Connecticut.—Connecticut ranks first in the manufacture of ammunition and cutlery and makes also much rubber, elastic and silk goods, and hosiery. More than half the plated and Britannia ware, and most of the pins and clocks used in the United States, are made here.

It is largely engaged in the coasting trade.

The valley of the Connecticut is the most fertile portion of the State, and is noted for its fine tobacco crops.

12. Cities.—**Hartford**, the capital, is at the head of navigation on the Connecticut, and is the center of large insurance and manufacturing interests. **New Haven**, the "City of Elms," on Long Island Sound, is the seat of **Yale University**, one of our oldest and most famous educational institutions.

Bridgeport is extensively engaged in manufacturing sewing-machines; **New London**, in the manufacture of silk goods and machinery.

Norwich is a center of cotton manufacture; **Waterbury** makes clocks, watches, and brass ware; **Meriden**, silver-plated ware; **New Britain**, hardware; **Danbury** as a hat manufacturing city ranks first in the United States; **Willimantic** is noted for thread and textiles; **Portland**, for its quarries of red sandstone.

Review Topics.—The largest New England State. Its chief manufactures. Describe Bangor, Portland. The important manufacturing towns. Augusta, Bath. What is New Hampshire often called? Coast-line. Principal industries. Concord, Manchester, Nashua, Dover, Keene, Portsmouth. Where is Dartmouth College? Important industries of Vermont. Its chief cities. The rank of Massachusetts in fisheries; manufactures; commerce and wealth. Describe Boston, Cambridge, Worcester, Springfield, Lynn, New Bedford, Taunton. Which is the smallest State? In what engaged? Locate Newport. Describe Providence. What does Connecticut manufacture? Noted crop of the Connecticut Valley. Describe Hartford, New Haven, Bridgeport, New London, Portland. Other manufacturing towns in Connecticut.

XXVII. MIDDLE ATLANTIC STATES.

STATE.	Area in Sqr. Miles.	Population, 1900.	Capitals.	Chief Cities and their Population.
New York	49,170	7,268,894	Albany	New York...3,437,202
New Jersey	7,815	1,883,669	Trenton	Newark . . . 246,070
Pennsylvania	45,215	6,302,115	Harrisburg..	Philadelphia.1,293,697
Delaware	2,050	184,735	Dover	Wilmington . 76,508
Maryland	12,210	1,188,044	Annapolis...	Baltimore ... 508,957
District of Columbia	70	278,718		Washington . 278,718
Virginia	42,450	1,854,184	Richmond ..	Richmond. . . 85,050
West Virginia.. ...	24,780	958,800	Charleston..	Wheeling ... 38,878



Delaware Water Gap, where the Delaware River cuts its way through the mountains. The mountain tops, all on the same level, show that the region was once a plateau through which the valleys have been cut by the stream.

1. Position and Area.—The Middle Atlantic States embrace nine degrees of latitude. They extend several degrees farther the south than the New England States, and have a milder

climate and more varied agricultural productions. The two sections differ also in many of their leading pursuits.

New York alone is nearly three-fourths the size of all the New England States put together; while all the Middle Atlantic States united are about two-thirds the size of Texas.

2. Coast.—The coast-line of the Middle Atlantic States is remarkably indented. Its harbors are among the best on the Atlantic seaboard.

3. Surface.—Land that is formed of the rock waste that the rivers have brought down from the mountains is called **alluvial**. Level land that has been at one time the bed of the sea is called a **marine plain**.

The seaboard of the Middle Atlantic States, and of all the country to the southward, is partly alluvial and partly marine, and both together form the **Coastal Plain**.

The line where the Coastal Plain joins the Piedmont is marked by falls and rapids, as those of the Delaware at Trenton, the



The fall line at Richmond, Va., where the James River plunges from the Piedmont Plateau to the Coastal Plain. The rocks are granite and are the remains of an old mountain range now worn down.

Schuylkill at Philadelphia, the Patuxent near Baltimore, the Potomac near Washington City, the Rappahannock at Fredericksburg, and the James at Richmond. This line is often called the **Fall Line**.

Beyond the Coastal Plain and beginning at the Fall Line is the **Piedmont**, a broad and fertile strip of rolling and hilly country which, like the Piedmont plateaus of New England, was once very high mountainous country, but has been worn down.

Next we have the Mountain region crossed from northeast to southwest by the Blue Ridge, the Alleghenies, and other ranges of the Appalachian system.

In New York are the **Adirondack** and **Catskill Mountains** which are outlying spurs of the Appalachians. The former contains the loftiest peaks in this group of States, of which **Mt. Marcy** is the highest.

4. Drainage.—The Middle Atlantic States are divided by the mountains into two slopes, one of which inclines toward the southeast, and carries the drainage into the Atlantic Ocean; and the other to the northwest, with drainage both into the Great Lakes, by numerous small streams, and into the Gulf of Mexico through the Ohio and Mississippi rivers.

5. Rivers and Lakes.—The principal rivers of the eastern slope are the **Hudson**, one of the most important water routes to the sea; the **Delaware**, the **Susquehanna**, the **Potomac**, and the **James**. On the western slope are the **Allegheny**, the

Monongahela, and the **Great Kanawha**, all of which enter the Ohio.

The Hudson, the Delaware, the Susquehanna, the Potomac, and the James rivers have cut gaps in the mountains on their way to the Atlantic Ocean. The scenery about such **water-gaps** is often very wild and grand. The rivers are navigable up to the Fall Line.

The lakes are chiefly in the State of New York.

The **Falls of Niagara**, over which the water of the Great Lakes descends on its way to the Atlantic, are partly within this State.

6. Climate.—The Gulf Stream sweeps close to the shores of the Middle Atlantic States, and the winds from the sea temper their climate. Their northern section has a temperature similar to that of New England; the southern is much warmer.

7. Minerals.—Most of these States are rich in iron. Coal abounds in Pennsylvania, Maryland, and the Virginias; zinc in New Jersey and Virginia; salt in New York and West Virginia; and petroleum in Pennsylvania, New York, and West Virginia.

8. Pursuits and Products.—The leading pursuits are agriculture, manufacturing, mining, and commerce. The milder climate and richer soil of this section make agriculture more profitable than in New England.

The grains, orchard fruits, berries, and garden vegetables do well in all these States.

Still, so great is the town and city population of this

section, and also of New England, in comparison with their rural population, that as we pass in review State after State, from Maine toward the south, we find none of them producing corn and wheat enough for its own consumption until we come to Maryland.

This State produces corn and wheat to sell.

The hay and wool crops and the dairy products of New York and Pennsylvania are very large.

Virginia, Pennsylvania, and Maryland produce and export large quantities of tobacco.

Manufacturing is the leading industry in these States, as in New England. The principal manufactures are iron and steel and a great variety of articles made from these—clothing, silk, woolen and cotton goods, flour, and farming machinery.

New York and Pennsylvania rank first among the States in manufacturing.

The **Commerce** of these States is more important than that of any other section of the country.

The **Middle States**, like New England, buy enormous quantities of food products for the inhabitants, and raw materials for the manufactures.

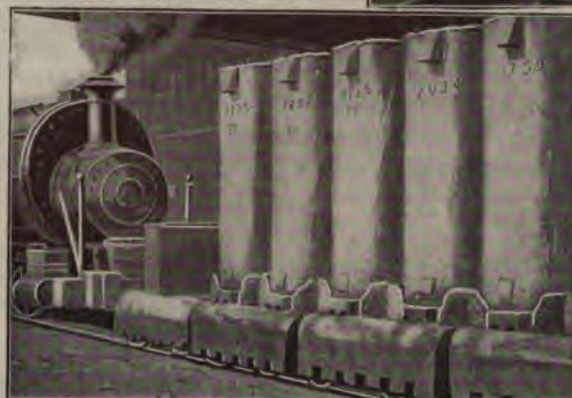
Most of the railways and canals which traverse our great agricultural and mining regions bring their freight to the seaboard cities of this section for export. All this, com-



The steel ingot is heated again, rolled and cut into two or three lengths called blooms. The blooms are again heated and taken to the great rail mill where they are rolled into steel rails. This cut shows one of the rolling mills.

bined with the great trade caused by the sale of her manufactures, makes a vast commerce.

The **exports**, which include articles from all sections, are cotton, wheat, flour, corn, tobacco, live stock, petroleum, and manufactured goods.



This is a train of ingot molds, into which the melted steel is drawn from the converters. As it cools the mold is removed and an ingot of steel remains.

Review Topics.—Name the Middle Atlantic States. Compare with New England. Describe the coast-line. Harbors. Define alluvial country. Describe the Coastal Plain. The Piedmont Region. What Mountains traverse these States? Describe the slope of these States. Name the principal rivers of each. Describe the water-gaps. The lakes. Niagara Falls. The climate. The mineral productions. The agricultural productions. Which State produces breadstuffs enough for home use? What are the chief crops of each State? The principal manufactures. What States rank first in manufacturing? Describe the commerce. Exports.

XXVIII. NEW YORK, NEW JERSEY, AND PENNSYLVANIA

1. New York.—New York, the "Empire State," ranks first among the States in wealth, population, manufactures, and commerce.

The climate of Western New York is tempered by the Lakes, which modify the west winds as they sweep over them. This part of the State has, moreover, a fertile soil. It is therefore a fine agricultural country. Wheat, corn, and the hardier orchard fruits flourish here.

New York is famous for its butter, hay, hops, and grapes.

The chief mineral resources of this State are its salt springs and iron ores. It has also valuable oil wells and mineral springs.

The falls and rapids of Niagara have a descent of about 300 feet. They therefore show that Lake Erie is on a terrace 300 feet above Lake Ontario. The smaller lakes are situated on the same terrace with Lake Erie, consequently the rivers, which carry the water of these lakes into Lake Ontario, have either to leap precipices or to descend by rapids in order to escape from this terrace. Their falls afford fine water-power.

2. Cities.—New York is the largest and richest city in



Making steel near Pittsburg. The iron is melted in the furnace, poured into little cars called ladles, rolled to the mixer where it is treated, and then poured into the converter. This cut shows a converter ready to be loaded with melted iron from the mixer near by in the center. When it is loaded the converter is turned so that it stands as the other two converters. Hot air is forced through the melted iron, which raises it to white heat, burning out all the impurities and converting it into steel. During this process out of the mouth of the converter pour flames, burning gases and millions of sparks.



The harbor of New York consists of the Hudson river, the East river, and the bay in which they meet at the southern end of the island. This picture shows the East river looking toward Brooklyn. The long, white buildings are piers where ships lie; on the shore are warehouses where goods are stored. The ferryboat is coming from Brooklyn to Wall Street. The first steamship on your right goes to the Bahamas, the next to Cuba; next come the Mallory Line steamers. Near the Brooklyn Bridge are piers of steamboats sailing for cities on Long Island Sound. Most of the steamer piers are on the Hudson river.

America, and is second only to London among the great cities of the world. It comprises five boroughs, the most important of which are Manhattan (old New York) and Brooklyn, which are connected by the largest suspension bridges in the world.

In manufactures New York ranks first among our cities, and her commerce is nearly equal to that of all the other parts of the country put together.

The leading exports from New York are grain and flour, meat and dairy products, iron and steel goods, and petroleum. The imports are mainly raw sugar, coffee, textile goods, tobacco, and every sort of manufactured wares.

There are many great banks and trust companies in the city which have in them hundreds of millions of dollars. This money is used to carry on commerce and to establish great enterprises in all parts of the United States. This makes New York one of the great money centers of the world.



Yards of the Pennsylvania Railroad at Jersey City, showing the freight cars loaded with articles which make up part of the commerce of New York.

It is the seat of Columbia University and the University of the City of New York.

Albany, the capital of the State, is a great lumber market, and has car shops and foundries.

It is at the head of navigation on the Hudson and at the mouth of the Erie and Champlain Canals.

3. Buffalo, at the western end of the Erie Canal, is a leading lake port and depot for grain, cattle, sheep, and lumber. It has extensive manufactures and a large commerce on the Lakes.

Rochester, on the Genesee, and **Oswego**, at the mouth of the Oswego River, possess fine water-power. Cameras, lenses, clothing, and boots and shoes are the leading products of Rochester, hardware, hosiery and knit goods of Oswego. In and near Rochester are renowned nurseries of fruits and flowers. **Syracuse** manufactures hardware, machinery, and clothing.

From the salt springs near Syracuse, and the salt works in the district of **Warsaw**, nearly one-fourth of the annual salt product of the United States is obtained. **Utica** manufactures textiles, **Schenectady**, locomotives.

Troy makes collars and cuffs and has enormous laundry works. Its Polytechnic School is one of the best.

Saratoga is celebrated for its mineral springs.

The country bordering upon the Hudson is in a high state of improvement. Handsome houses and beautiful grounds meet the eye at every turn, and lend enchantment to the scenery. **Newburg** and **Poughkeepsie** are manufacturing cities. The United States Military Academy is at **West Point** on the Hudson, and Vassar College, a noted college for women, is at Poughkeepsie.

Yonkers is noted for carpets and rugs; **Binghamton**, cigars and shoes; **Elmira**, fire engines, iron wares, and knit goods; **Auburn**, harvesting machinery; and **Watertown**, air-brakes and carriages.

4. New Jersey.—The greater part of New Jersey lies within the very productive Coastal Plain of the Atlantic seaboard, and has a mild climate. It is, therefore, specially adapted to agriculture. The farms are largely devoted to market gardening, and supply New York and Philadelphia with fruits and vegetables.

The State is rich in mines of iron and zinc, and in deposits of marl, a kind of earth used for fertilizing.

This State ranks first in the manufacture of sewing machines and silk goods and in the dying of textiles, and second in the refining of petroleum.



Buffalo harbor: a grain elevator and a whaleback freight ship.

5. Cities.—**Newark**, the largest city, is noted for its manufactures of India rubber, leather goods, clothing, jewelry, chemicals, and hats. **Paterson** is celebrated for railway locomotives and silk goods; **Camden** for its dry docks. **Jersey City** and **Hoboken**, at the mouth of the Hudson, are largely engaged in shipping and manufacturing.

Princeton is the seat of Princeton University, one of the most celebrated educational institutions in the United States.

Trenton has extensive iron works and potteries. **Elizabeth** manufactures sewing machines and builds ships. **New Brunswick** has large rubber works. **Atlantic City, Cape May, Long Branch, and Asbury Park** are noted summer resorts.



Manufacturing silk cloth in Paterson. The raw silk is imported. The first picture at the top of the page shows the silk being wound from the thread into hanks so that it can be dyed. The next shows the threads being made into warp for weaving. The third shows the Jacquard Loom, which weaves the brocaded silk.

6. Pennsylvania.—Pennsylvania, the "Key-stone State," is the leading mining State in the Union. It supplies more than half the coal and petroleum, and smelts, though it does not mine, about half the iron produced in the United States.

The coal of Pennsylvania is the chief article of fuel used throughout the Middle Atlantic and New England States for domestic purposes, for smelting, and for the production of steam power. Anthracite coal is found in the eastern part of the State, and bituminous in the western.

The petroleum of Pennsylvania is extensively used for fuel, for lamps, and for the lubrication of machinery. It is one of our chief articles of export, and is sent in ships fitted with tanks to nearly all parts of the world.

The crude oil is pumped from the wells to the seaboard and lake cities through iron pipes, of which there are several thousand miles. They spread through the oil region like a vast network. Some of the wells, when first bored, yielded several thousand barrels each day. The yield afterwards became less.

In manufactures, Pennsylvania ranks as the second State in the Union and leads all the rest in the making of carpets and rugs, glass, iron and steel, leather, and the refining of petroleum.

The soil and climate are well adapted to agriculture. The crops of grain and tobacco, as well as the grazing products, are very important.

7. Cities.—**Philadelphia** is the third city in the country in

population, and one of the first in manufactures and commerce. Its greatest manufactures are iron, machinery, refined sugar, carpets and rugs, cotton and woolen goods, and leather, all of which are extensively exported. It is the greatest coal depot in the United States.

It is celebrated for its medical schools and academies, its charitable institutions, and its historic buildings. Here is the Old State House where the **Declaration of Independence** was signed, July 4, 1776.

Pittsburg, the second city in the State, and **Allegheny City**, now united with Pittsburg, are at the head of the Ohio River. Both are extensively engaged in manufacturing iron and glass. Petroleum and bituminous coal are sent out in vast quantities. **Erie** is the lake port of the State. It ships coal and iron. **Williamsport** is a great lumber market. **Lancaster** is an important tobacco market.

The flourishing cities of **Scranton, Reading, Wilkes-Barre, and Pottsville** are in the coal region, and are all engaged in iron and steel industries and the coal trade. **Harrisburg**, the capital, is largely interested in the manufacture of iron. **Altoona** has the largest car shops in the State; **Johnstown** makes steel and hardware; **Allentown**, steel and silk goods; **McKeesport**, steel and lumber; **Chester**, cotton and worsted goods, steel, and hardware.

Review Topics.—How does New York rank in wealth, in population, in commerce, in manufactures? For what products is New York famed? What are its minerals? How much higher is Lake Erie than Lake Ontario? Describe New York City. Albany. Buffalo. Rochester. Oswego. Troy. The Hudson. West Point. Why is New Jersey adapted to agriculture? What are its minerals? Describe Newark and Paterson. Jersey City. Hoboken. Princeton. Trenton. In what does Pennsylvania excel? How much iron does she produce? Coal? Petroleum? Manufactures? Important agricultural products? Describe Philadelphia. Pittsburg. Allegheny City. Reading, Pottsville, Scranton, and Wilkes-Barre. What is the capital?



XXIX. DELAWARE, MARYLAND, VIRGINIA, AND WEST VIRGINIA.

1. Delaware.—Delaware lies altogether in the Coastal Plain. It is poor in minerals, but rich in soil, and favored



Making gold eagles in the Philadelphia mint. 1. The gold bars are rolled into strips the thickness of an eagle.



2. The strips being passed through a machine which cuts out disks.



3. Making the disks into gold eagles by stamping them with the steel die.

with a moderate climate.

It is therefore a fine fruit country, and is specially famed for its peaches. Many people are employed in supplying the markets of Philadelphia, New York, and Baltimore with fruits and vegetables.

Wilmington, the principal city, is extensively engaged in manufacturing gunpowder, locomotives, railroad cars, paper, and flour, and in building steel and iron steamships.

12:4 P. M.

RICHMOND

RICHMOND

RICHMOND

RICHMOND

SOUTHERN DIVISION

Dover is the capital. **New Castle** has extensive fruit-canning industries.

2. Maryland.—The peninsula between the Delaware and Chesapeake Bays belongs in part to Delaware, in part to Maryland, and in part to Virginia. It rises but little above the sea level, and is without mountains, lying wholly within the Coastal Plain. The winter climate of this "Eastern Shore," as it is called, is one of peculiar mildness, due to the waters around it.

Tobacco, fruit, and grain are leading agricultural products.

The western part of the State is crossed by ranges of the Appalachians, which abound in coal, the mining of which, therefore, constitutes an important industry in this part of the State.



Baltimore.—The oyster fleet which brings the famous oysters up to the city.

Chesapeake Bay is remarkable for its fish and game. The oysters, shad, and herring obtained in Chesapeake Bay add millions of dollars a year to the wealth of the State. Its canvas-back ducks, terrapin, and oysters are unsurpassed.

From the oyster-beds of this bay the West is largely supplied. Fishermen obtain the oysters from the bed of the bay with long-handled rakes called tongs.

3. Cities.—**Baltimore** is one of the most important commercial and manufacturing centers. It manufactures clothing, tobacco, canned goods, iron and steel, and flour, and has a large wholesale trade. Its chief exports are grain, flour, cattle, lard, oil, and petroleum.

Its position near the head of Chesapeake Bay and the fact that railroads connect it directly with the leading commercial cities of the Mississippi Valley make it one of the important outlets for the products of that region. Lines of steamers connect it with domestic and foreign ports.

Baltimore is the seat of **Johns Hopkins University** and **Loyola College**.

Annapolis is the capital of the State, and the seat of the United States

Naval Academy. **Cumberland**, in the coal regions, has extensive manufactures of iron and steel.

Hagerstown manufactures automobiles, organs, lumber, furniture, and vehicles. **Frederick** is also a manufacturing town.

4. District of Columbia.—The District of Columbia, so called in honor of Columbus, embraced originally an area of 100 square miles. It was ceded in 1790 to the United States, in part by Virginia and in part by Maryland, for the purpose of establishing here the seat of the General Government.

In 1846 Congress ceded back to Virginia her portion, so that now the District contains only about seventy square miles.

It is governed by three Commissioners appointed by Congress.

5. Washington, the seat of government of the United States, is situated in the District, on the Potomac river. The site was selected by General Washington, and it is now one of the handsomest capitals in the world.



White House and grounds. The Capitol is in the distance.

Its most important public buildings are: The Capitol; the Congressional Library; the Treasury; the State, War, and Navy Departments; the White House, the home of the President; the Smithsonian Institution; the National Museum; the Agricultural Department; the Patent Office; the Observatory. The Washington Monument is 555 feet high.

6. Virginia.—Virginia, the oldest of the "Original Thirteen," is sometimes called the "Old Dominion." It has nearly the same area as Pennsylvania.

The Allegheny Mountains and the Blue Ridge cross the State nearly parallel to each other. The country lying between them, varying in breadth from 30 to 70 miles, is the celebrated Valley of Virginia. It is the garden-spot of the State.

MAP STUDIES.—Name the States on this map. What parts are mountainous? Which State has no sea-coast? What States nearly inclose Chesapeake Bay?

Delaware.—Has Delaware any mountains or large rivers? Within what region, then, does it wholly lie? What bay and river form the eastern boundary? What is the capital of the State, and where is Wilmington? New Castle?

Maryland.—Describe the surface of the western part. The eastern part. What river separates Maryland from Virginia and West Virginia? What great bay divides this State? What important river enters the head of this bay?

What large city near the mouth of the Patapsco river (see small map)? What is the capital? Where is Frederick? Hagerstown?

District of Columbia.—What river forms the southwestern boundary of the District? What important city is located here?

Virginia.—What mountain range traverses Virginia? What ranges on the western boundary? What mountains divide Virginia and Ken-

tucky? What river forms the northern boundary? How does the eastern portion of Virginia differ from the western? What great bay intersects the eastern part of Virginia? What two capes at its entrance? What rivers enter this bay? What three rivers break through the Blue Ridge? What is the capital? Describe Lynchburg; Alexandria; Fredericksburg; Staunton; Winchester; Danville; Lexington.

West Virginia.—What rivers form the western boundary? What rivers flow into the Ohio? What is the principal river in the State? What is the only river rising in this State and flowing into the Atlantic? Where does it break through the Blue Ridge? What river joins it here? What is the capital of the State, and where? Where is Wheeling? Parkersburg? Martinsburg? Huntington?

Routes of Travel.—On what bodies of water would you sail in going from Baltimore to Philadelphia? How would you go in a steamboat from Washington to Richmond? Norfolk to Wilmington? Annapolis to Fredericksburg? Wheeling to Charleston? What mountain ranges would you cross in going by rail from Richmond to Louisville?

The Luray Caves, which rival the Mammoth Cave of Kentucky in grandeur. Weyer's Cave, and the Natural Bridge, with its singular archway of rock, are all in this valley, and are objects of great interest to tourists.

Numerous rivers rise in the mountains and flow across the State into the Atlantic. Many of them, in the upper parts of their courses, furnish water-power.

Virginia is rich in coal, iron, manganese, and zinc, and is the third State in the production of tobacco. The other agricultural products are corn, wheat, live stock, dairy products, and vegetables.

It shares with Maryland the oyster-beds of Chesapeake Bay.

7. Cities.—

Richmond, the capital and largest city, has extensive tobacco factories, flour mills, large foundries, machine shops, and locomotive works. It is the chief railroad center of the State.

Norfolk is the principal seaport, and has an important commerce. Its harbor is not surpassed in the United States. At Portsmouth is a navy yard of the United States.

Petersburg, Lynchburg, and Danville are important tobacco markets and manufacturing cities. Roanoke is a center of iron and steel manufactures.

Newport News has great shipyards, where the largest steel battleships, cruisers, and merchant ships are built. It is also an important shipping port.

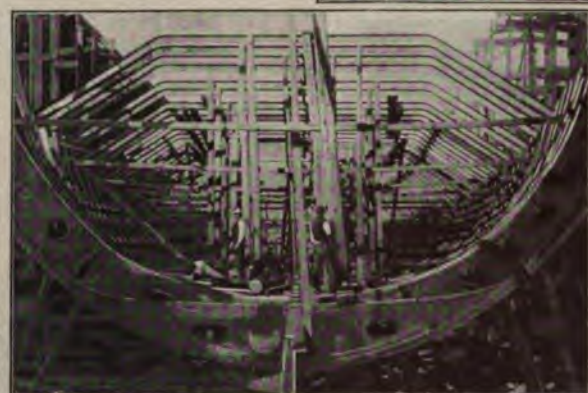


A view of the harbor of Norfolk, showing the small boats loaded with fruits and vegetables brought in for shipment to Northern markets.

Alexandria, near Washington, is a place of considerable trade. The University of Virginia, one of our most noted seats of learning, is at Charlottesville. Mt. Vernon, a beautiful spot on the Potomac, was the home of Washington.

8. West Virginia.—In 1863 the northwestern portion of the "Old Dominion" was organized as a separate State under the name of West Virginia.

The mountains of this State abound in iron and coal; the



Building steel ships at Newport News, Virginia. The lower cut shows the steel framework of the ship which is upon the "ways." The second cut shows the same ship ready for launching. When the props are knocked out the ship slides down the ways into the water. Afterward the machinery is put in and the vessel finished.

A coal breaker in West Virginia. The coal comes from the mines in masses of varying sizes. It is here crushed, cleaned, and graded in sizes. It then drops into cars which carry it to market.

Review Topics.—The surface and soil of Delaware. Its productions. Manufactures of Wilmington. The capital. Of what peninsula does Maryland occupy a part? Chief Products. Describe Baltimore; Annapolis; Cumberland; Frederick; District of Columbia. How governed? Describe Washington. What is Virginia sometimes called? What mountains cross this State? Describe the Valley. The caves. The rivers. Minerals. Productions. Oyster-beds. Describe Richmond. Norfolk. Portsmouth. Newport News. Petersburg. Lynchburg. Roanoke. Alexandria. Charlottesville. Mt. Vernon. West Virginia. Products. Describe Wheeling. Charleston. Parkersburg.

XXX. SOUTHERN STATES.

STATE.	Area In Sqr. Miles.	Population, 1900.	Capitals.	Chief Cities or Towns and their Population.
North Carolina...	52,250	1,893,810	Raleigh	Wilmington... 20,976
South Carolina...	30,570	1,340,316	Columbia.....	Charleston.... 55,807
Georgia	59,475	2,216,331	Atlanta	Atlanta..... 89,873
Florida	58,680	556,690	Tallahassee...	Jacksonville... 28,429
Alabama	52,250	1,828,697	Montgomery...	Mobile..... 38,469
Mississippi.....	46,810	1,551,270	Jackson.....	Vicksburg 14,834
Louisiana.....	48,720	1,381,625	Baton Rouge..	New Orleans... 287,104
Texas.....	265,780	3,048,710	Austin	San Antonio... 53,321
Arkansas.....	53,850	1,311,564	Little Rock...	Little Rock... 38,307
Tennessee.....	42,050	2,020,616	Nashville....	Memphis 102,320
Oklahoma	70,430	790,391	Guthrie	Oklahoma City. 10,037

1. Position, Size, and Population.—The Southern States lie between the parallels of 25° and 37° north. They embrace about the same breadth of latitude as the Middle Atlantic and the New

SOUTHERN STATES.

EASTERN DIVISION.

MAP STUDIES.—Between what parallels of latitude are these States situated? What two form the northern boundary? What States border on the Atlantic Ocean? On the Gulf of Mexico? The Mississippi River? Which State has the longest coast-line? Which State is without seacoast? In what mountain ranges do nearly all the rivers of these States take their rise? What general directions have they? Trace the ridge of sandhills extending across these States. (It is shown by a light mountain line. It divides the upland and lowland of these States.) What kind of climate should you expect to find in these States? Which of these States has the warmest climate? When it is noon at Washington, what time is it at Columbus, Georgia? When it is noon at Columbus, what time is it at Columbia, South Carolina?

North Carolina.—What is the eastern boundary? What mountain chain forms the western boundary? What mountain range crosses the State? Where is Mt. Mitchell? Where are Balsam Mountains? In what direction does the eastern part of the State slope? The western part? What mountains form the watershed of this State? Name the capes on the coast. What sounds in the eastern part? (A series of long, narrow, sandy islands separates these sounds from the sea.) Where is Roanoke Island? What river flows into the Atlantic near Cape Fear? What and where is the capital? Describe Wilmington. Charlotte. Fayetteville. Newbern.

Tennessee.—What mountains separate Tennessee and North Carolina? What mountains cross Tennessee? What is the western boundary? Name the principal rivers. What river receives all the drainage of this State? What large river crosses the State twice? What part of the State is traversed by the Cumberland? Are there any important rivers that flow into the Mississippi directly from this State? What is the capital? How is it situated? Describe Memphis. Knoxville. Chattanooga. Jackson.

South Carolina.—What mountain range forms the northwestern boundary? What river the western? Name the chief rivers. What two form the Santee? What is the Wateree called in North Carolina? What river do the Saluda and Broad form? Where is the Great Pedee? What river east of the Pedee? Where is Edisto Island? St. Helena? Sullivan's Island? What large city between the mouths of the Ashley and Cooper rivers? Name the capital. Describe Columbia. Greenville. Spartanburg. Newberry.

Georgia.—What part is mountainous? Name one range in the northwest. Where is the Okeef-no-kee Swamp? What parallel forms the northern boundary? What river the eastern? What river a part of the western? What river a part of the southern? Describe the course of the Chattahoochee. The Flint. What two rivers unite to form the Altamaha (*Al-ta-ma-haw'*)? What river south of the Savannah? Where is the Allapaha? Name the islands on the coast. Where is Savannah? What is the capital? Describe Augusta. Columbus. Athens. Macon.

Florida.—What natural division of land is this State? In what part of the State are most of the towns? Describe the course of the St. John's river. Of the Suwanee. Name the largest lake. Where are the Everglades? Name the capes on the coast. What bays on the coast? Where are Florida Keys? Where is Key West, the most southerly town in the United States? Dry Tortugas? Where is the capital? Describe Pensacola. Jacksonville. Fernandina. St. Augustine.

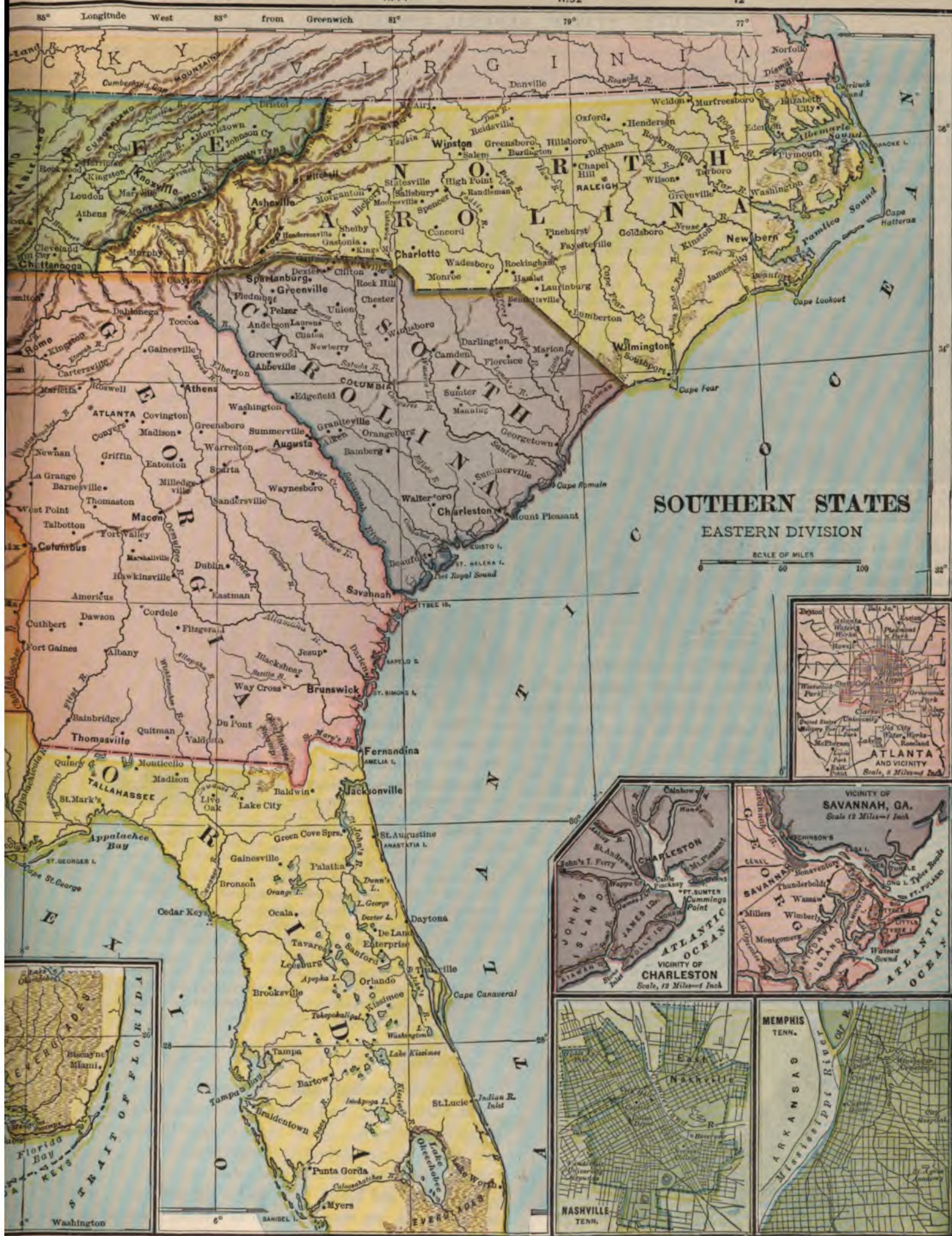
Alabama.—What part of Alabama is mountainous? What two rivers flow into Mobile Bay? What rivers form the Alabama? Describe the course of the Coosa. Of the Ala-



bama. Of the Tombigbee. What large river flows through the northern part of Alabama? What river flows between Alabama and Georgia? Describe Mobile. The capital. Birmingham.

Mississippi.—What rivers form the western boundary of Mississippi? Name the principal rivers of this State. What two rivers enter the Mississippi near Vicksburg? Where is Mississippi Sound? What is the capital? On what river is it? Describe Vicksburg. Natchez. Meridian.

Routes of Travel.—How would you go by steamboat from Wilmington, North Carolina, to Macon? From Jacksonville to Selma? Florence to Memphis? Jackson to Mobile? New Orleans to Nashville?



to the cultivation of grain, tobacco, fruits, and vegetables. That of the southern part is semi-tropical. This section is well watered and suited to the growth of sugar cane, cotton, rice, and tropical fruits.

The copious supply of moisture enjoyed by this portion of the country contributes to make it the very first among the **cotton-growing regions** of the world. In a climate that is less humid, as, for example, that of India, cotton will grow and yield abundantly, but the fiber is short, and this renders it far more difficult to spin into

yarn and weave into cloth.

The winds from the Gulf bring the frequent summer rains. Hence we find in the southern parts of Alabama, Mississippi, and Louisiana a greater annual



Photographs of a cotton mill in Columbia, S. C., showing four steps in the manufacture of cotton goods. 1. The carding machine straightens the fiber and rolls the cotton, which is gathered into cans.

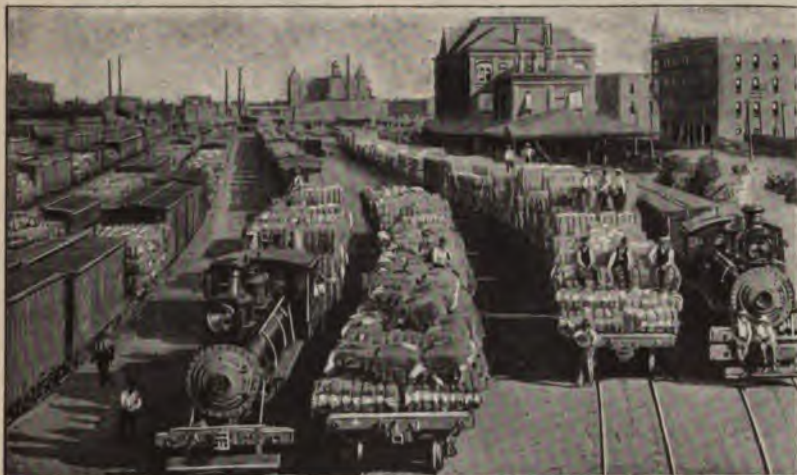
rainfall than that of any other portion of the country east of the Rocky Mountains.

The majority of people in the Southern States are engaged in agriculture. Manufacturing, mining, and commerce are the other important industries.

Influence of Inventions.—The industrial pursuits of the Southern States were very largely determined by the invention of the cotton-gin, the spinning-jenny, and the power-loom.

One hundred years ago the cultivation of cotton in the Southern States was confined to a small patch on each farm, capable of producing a few pounds only. The seeds were picked from the cotton by hand, and the cotton spun and woven by the women of the family into "home-spun."

The cotton-gin removes the seed from the cotton. In a few minutes one can do as much work as a whole family could do in a week. A **spinning-jenny** and a **power-loom** can spin and weave as much cotton in a day as a woman could in a year. These inventions made cotton planting the great industry of the Southern States. The an-



Shipping cotton by railroad.—Freight cars loaded with cotton at the station at Houston, Texas, during the busy season.

nual crop, now ten to twelve million bales, is about three-fourths of the world's supply.

From the seed an oil is pressed as fine as olive oil. The cake which is left is ground and sold for cattle feed and fertilizers. **Cotton-seed-oil** mills are numerous.

Within the past few years the attention of the people of the Southern States has been largely directed to the **manufacture** of cotton. Extensive mills have been erected, and the production of cotton goods has steadily increased. The number of mills has more than doubled in ten years.

The **advantages** which attract the cotton-spinner to this region are these: (1) the raw material is produced at his very doors, and he is therefore in a large measure saved the expense of transportation; and (2) numerous streams descending to the sea from the mountains furnish unlimited water-power.

Commerce.—The commerce of these States consists chiefly in the sale of cotton, sugar, rice, lumber, coal, iron, naval stores, cotton cloth, and cotton-seed oil. They buy fine textiles, clothing, boots, shoes, hats, furniture, agricultural implements, silverware, and other manufactured articles, and often flour, corn, and meat from the other States. Numerous railways and navigable rivers afford ample means of **transportation**. The leading imports are raw sugar, coffee, and tea; bananas, pineapples,



3. The spools are placed on this machine. Here the cords from six spools are twisted together to make one thread.

and other tropical fruits from Mexico, Central and South America; also manufactured goods.

Review Topics.—Name the ten Southern States. Compare in size with the New England and Middle Atlantic States. In population. Coast line. Harbors. How does the surface resemble that of the Middle Atlantic?

How do the mountains divide the States east of the Mississippi? Into what do the rivers flow? What elevations west of the Mississippi? Describe the forest belts. Swampy belt. Live-oak forests. Pine belt. How far are the rivers navigable? Describe the Mississippi and its southern tributaries. What minerals in the mountains? In Alabama and Tennessee? In Georgia and North Carolina? In Louisiana? Arkansas? Other Southern States? Climate? What makes the Southern States a cotton-growing region? Describe the rainfall in some of the Gulf States. The occupations. What inventions have affected the industries? What effect did they produce? Cotton manufacture in the Southern States. Commerce. Principal exports. Chief imports.

XXXI. NORTH CAROLINA AND TENNESSEE.

1. North Carolina and Tennessee.—North Carolina, the "Old North State," and Tennessee are mainly between the same parallels of latitude. Except in the Coastal Plain of North Carolina, the industries of the two States are similar.

Both States are admirably adapted to the growth of grain, tobacco, flax, and hemp. The grape, fig, and peach, with other orchard fruits, are raised, as well as melons, peanuts, and sweet



4. On the cylinders shown here are wound certain threads called the warp, while little spools of thread are placed in the shuttles which move backward and forward, filling the warps and making cloth.

[Copyrighted by Underwood & Underwood, 1904.]

potatoes. Cotton is extensively cultivated except in the mountain sections.

The territory constituting Tennessee once belonged to North Carolina, and was settled chiefly by emigrants from that State. **Daniel Boone**, the celebrated hunter, who led the way for settlers, both into Kentucky and Tennessee, was a North Carolinian.

2. North Carolina.—The highest mountains east of the Mississippi are in this State. The highest of these is Mt. Mitchell. There are 43 peaks 6,000 feet and upwards in height, and 82 between 5,000 and 6,000.

The plateau here is over 2,000 feet above the sea level, and its dry air and beautiful scenery have made it famous as a health resort.



Selling tobacco at auction in Winston, N. C. This scene is called a tobacco break.

North Carolina is an important manufacturing State. It ranks third in the United States in the manufacture of cotton goods. The Piedmont section is dotted with cotton mills. The tobacco grown there is of the finest grade. The State stands second in the Union in the value of its tobacco crop and third in manufactured tobacco.

The eastern section abounds in cypress swamps and forests of long-leaf or pitch pine. The cutting of lumber, cypress staves and shingles are leading industries. The gathering of naval stores is also a very important industry.

In the Coastal Plain rice is grown, and early fruits and vegetables are cultivated for Northern markets. The sounds and rivers of this region abound in fish. The fishing industries are of great value. In Albemarle Sound as many as 300,000 herring have been caught at a single haul.

In the Piedmont and mountain regions, gold, iron of the finest quality, coal, marble, and precious stones are found. The mica and corundum deposits are the richest known on this continent.

3. Cities.—**Raleigh**, the capital, is a manufacturing center. **Wilmington** is the chief city, and exports naval stores, lumber, rice, and cotton. It contains many sawmills and manufactures turpentine, tar, and rosin.

Charlotte is an important railroad and manufacturing city. **Asheville** is a famous health resort in summer and in winter. **Greensboro**



View on the Asheville plateau, showing the mountains which tower above it and the French Broad river that cuts its way through the mountains into Tennessee.

rich in coal, iron, and copper. Its marbles are of great beauty and variety. Its valleys are famous for their rich soil and beautiful scenery. The great valley of eastern Tennessee is really a continuation of the valley of Virginia.

Middle Tennessee is a rolling country, extending from the Cumberland Mountains westward to the Tennessee river. It excels in the production of wheat, corn, and tobacco. Here, in the blue-grass region, are celebrated stock farms.

West Tennessee is comparatively level. It is the great cotton-growing section of the State.

5. Cities.—**Nashville**, the capital, on the Cumberland river, is the second city in the State. It manufactures flour, fertilizers, lumber, and tobacco, and has a considerable commerce. The Peabody Normal College, Vanderbilt University, and other important educational institutions are here.

Memphis, on the Mississippi river, the first city in the State, is the greatest inland cotton market, and the largest producer of hardwood lumber and cotton-seed products in the world. A fine cantilever railway bridge here spans the river.

Chattanooga, on the Tennessee river, is a very important railroad center. It manufactures flour, lumber, furniture, and patent medicines, and has large iron furnaces and foundries.

Above Florence, Alabama, a canal 10 miles long carries boats around the famous mussel shoals of the Tennessee river.

Knoxville is the commercial center of east Tennessee, at the head of navigation of the Tennessee river. **Jackson** manufactures lumber. **Clarksville** is engaged in the tobacco trade.



The Mississippi river front at Memphis, Tenn., looking up the river. On the left are small steamboats. In the center is a wharf-boat which takes the place of a wharf, and beyond are larger side-wheeled steamers. It is impossible to build wharves here because of the rising and falling of the river. Merchandise is received on the wharf-boat or piled on the landing, as you can see in the picture. As the Mississippi rises the boats land higher and higher up the bank, until finally they reach the telegraph poles.

Review Topics.—Compare North Carolina and Tennessee in latitude and products. Who first settled Tennessee? Describe the mountains. The chief industries. Where is rice grown? Where is the mining region? Describe Albemarle Sound. The capital. The chief cities. Divisions of Tennessee. Chief cities.

XXXII. SOUTH CAROLINA AND GEORGIA.



East Battery at Charleston.

1. South Carolina and Georgia.—South Carolina and Georgia resemble each other in physical features. They both front on the Atlantic, and slope from the mountains to the ocean.

Their shores are fringed with the Sea Islands, which are celebrated for a kind of cotton called the sea island cotton. It is the finest in the world.

It has a long silky fiber, and is chiefly used for the manufacture of laces and other fine fabrics.

These States are alike in climate and industries.

2. South Carolina.

—In the manufacture of cotton goods, South Carolina ranks first among the Southern States, and second in the United States. Rice and sea island cotton are grown along the coast, and cotton and corn in all parts of the State. Truck farms are numerous, and tea culture is conducted with some success.

3. Cities.—**Charleston** is the principal city and chief seaport of the State. It is an important rice market, and ships large quantities of cotton, vegetables, and naval stores. Near the city are vast deposits of phosphate rock which is used in the manufacture of fertilizers.

Columbia, the capital, on the Congaree river at its falls, is an important manufacturing city. It is noted for its beauty, and is the seat of the University of South Carolina.

Greenville and **Spartanburg** are important cotton manufacturing cities.

The Winthrop Female Normal and Industrial College is at **Rock Hill**; the Clemson Agricultural College is at **Fort Hill**, the old home of John C. Calhoun; and the South Carolina Military Academy is at Charleston.

4. Georgia.—Georgia is one of the leading Southern States in manufacturing and commerce, and in the production of cotton, lumber, naval stores, melons, fruits, and vegetables.

North Georgia produces the finest of wheat and oats. Rice flourishes in the lowlands along the coast; cotton, the leading staple, in the central and southwestern parts of the State; corn grows everywhere. The great pine forests yield valuable timber and naval stores.

The gold mines of this State were considered very rich before gold was found in California, and are still profitably worked.

Georgia marble is famous. *Coal*, *iron*, *limestone*, and *manganese* are mined in the northern part of the State.

5. Cities.—**Atlanta**, the capital and largest city, is at the point where railroads must pass in coming around the mountain barrier. This makes it a great railroad and trade center. It ranks first in the State in manufactures. A school of technology is located here.

Savannah is the chief seaport, and an important commercial center. It exports cotton, rice, naval stores, and lumber.

Augusta, on the Savannah, and **Columbus**, on the Chattahoochee, have ample water power and extensive cotton mills. **Macon** has three colleges, cotton mills, and a large wholesale trade.

Rome has an important river trade. **Brunswick** ships cotton, lumber, and naval stores. The State University and the State Normal School are at **Athens**, and the Georgia Normal and Industrial College is at **Milledgeville**.

Review Topics.—Compare South Carolina with Georgia. Sea island cotton. How used? Manufacture of cotton goods. Agricultural products. Describe Columbia. Charleston. What minerals has the State? In what is Georgia prominent? What part produces wheat and oats? Rice? Cotton? What are the forest products? The minerals? Describe Savannah. Atlanta. Augusta. Columbus. Macon. Rome. Brunswick. Where is the State University?



View of naval stores on the wharf at Savannah, Ga., awaiting shipment. Savannah ships more naval stores than any other port in the world.

XXXIII. FLORIDA, ALABAMA, AND MISSISSIPPI.

1. Florida.—Florida has no mountains. It is dotted with beautiful lakes and springs.

The **Everglades** in South Florida may be described as a great shallow lake with long grass growing from the bottom. The surface is studded with islands, upon which are dense jungles of tropical trees and plants.

Florida fronts both on the Gulf of Mexico and on the Atlantic. It has so mild and delightful a winter climate that thousands of visitors spend the winter here each year. Its tourists' hotels are among the finest in the world.

The soil is adapted to the cultivation of cotton, sugar, and rice.

Florida is famous for its oranges and other tropical fruits.



View of the center of St. Augustine, Fla., showing the plaza and the immense hotels for winter visitors.

An important industry is the cultivation of **early fruits and vegetables** for Northern markets. In the southern parts of the State Sisal hemp, cocoanuts, pineapples, and guavas are grown. The **live oak** abounds here, and the **sponge fisheries** are valuable. The **phosphate deposits** are the richest and largest yet discovered. Florida is of limestone formation. The southern part is bordered by numerous coral-formed islands called **Keys**.

2. Cities.—**Jacksonville**, the largest city, ships pine lumber, oranges, and vegetables, by water and by rail, to Northern cities.

Tampa, the second city, ranks next to New York in the import of tobacco; it manufactures cigars and has steamship lines to Key West, Havana, and other ports. **Pensacola**, the chief city in foreign commerce, has a fine harbor, and ships pine lumber, naval stores, and cotton. **Key West**, on one of the Keys, manufactures the famous Key West cigars from tobacco grown in Cuba. Sponge fishing is an important industry.

Tallahassee is the capital. **St. Augustine**, founded by the Spanish in 1565, is the oldest town in the United States.



Making pig-iron in Alabama. First cut shows the mine where the ore is dug. Second is the outside of the furnace, showing the cars by means of which ore, lime, and charcoal are carried to the top of the furnace and dropped in. When heated, the charcoal unites with the impurities in the ore and the pure iron runs down to the bottom of the furnace. Third shows the bottom of the furnace. Every six hours the furnace is opened and the melted iron runs down to the little channels made in the sand, as shown in the picture. Each central channel is called a sow, and the little ones are called pigs; iron cast in this way is called pig-iron.

3. Alabama and Mississippi.—With the exception of the mountain region of north Alabama, these two States belong to the Gulf Plain, which is sometimes broken by hills made by the action of water. Corn and oats are raised for home use. Cotton is the great agricultural product. In the southern sections early vegetables and fruits are grown for Northern markets.

In the southern part of both States are extensive forests of long-leaf pine from which lumber, naval stores, and charcoal are manufactured. Both States have cotton factories and many cotton-seed-oil mills.

4. Alabama.—Alabama ranks first in the South and fourth in the Union in the production of iron, and fifth in the output of coal. Rich deposits of iron ore, coal, and lime lie near together, and supply the furnaces, rolling mills, and coke ovens that dot the mineral district. The Alabama and Tombigbee rivers furnish a waterway to the Gulf for the coal, iron, and cotton of the State.

5. Cities.—**Mobile**, the only seaport, exports cotton, lumber, naval stores, and iron. It imports bananas and other tropical fruits.

Birmingham, the largest city of the State, is the center of the coal and iron region, and has coke ovens, furnaces, and rolling mills. It manufactures steel rails, engines, boilers, machinery, cotton gins, and cotton. Many railroads center there.

Montgomery, the capital, is a railroad center and river port. It manufactures fertilizers, cotton, cotton-seed oil, and lumber, and has a large trade.

Anniston has iron furnaces and cotton factories. **Selma** is an important point for the shipment of cotton. **Huntsville** is a handsome town and manufactures cotton and lumber. The University of Alabama is at **Tuscaloosa**, and the Agricultural and Mechanical College is at **Auburn**.



6. Mississippi.—Mississippi lacks mineral wealth, but is rich in cotton and in forests of hard wood in the Delta, and of yellow pine in the southern hills.

The most important manufactures are lumber, cotton-seed oil and meal, naval stores, and cotton goods.

7. The Mississippi-Yazoo Delta.—There is no richer land in the world than that of the Delta. It is a part of the flood-plain of the Mississippi, and is protected from overflow by embankments called levees, which are built along that river from the bluffs above Vicksburg to the bluffs near the Tennessee line. A bluff just east of the Yazoo river forms the eastern rim of the Delta. The Delta embraces about one-seventh of the State. The cotton grown here ranks next to the sea island cotton in value.

8. Cities.—**Vicksburg**, the chief commercial city, and **Natchez** are both situated on the bluffs of the Mississippi.

They are important cotton markets and manufacture lumber and cotton-seed oil.

Meridian, the second city in population, is an important railroad and commercial center. Its leading manufactures are cotton products and fertilizers.

Jackson, the capital, is a great railroad and business center. **Gulfport**, a new seaport with a fine harbor, exports lumber and naval stores to foreign markets. **Columbus**, **Greenville**, **Greenwood**, and **Laurel** are cotton-manufacturing centers. **Biloxi** has the largest shrimp fisheries and ranks next to Baltimore in the oyster product. The University of Mississippi is at **Oxford**, the Agricultural and Mechanical College at **Starkville**, and the Industrial Institute and College for Girls at **Columbus**.



Canton, Miss., showing the cars loaded with coal which is used to run the machinery of the ice factory nearby. The ice is being put into the cars to preserve the fruit and vegetables on their way to Northern cities to be sold.

Review Topics.—Describe the surface of Florida. The Everglades. The climate. The soil. What ship-timber abounds? Phosphate deposits? What are the Keys? Describe Jacksonville. Tampa. Pensacola. Key West. Tallahassee. St. Augustine. Describe the surface of Alabama and Mississippi. Climate. Staple production. The minerals of Alabama. The forests. Its industries. Its chief rivers. Mobile. Montgomery. Birmingham. Anniston. Huntsville. Selma and Tuscaloosa. The State University. Mississippi. The forests. The Mississippi-Yazoo Delta. Vicksburg and Natchez. Meridian and other places of trade. The State educational institutions.

XXXIV. LOUISIANA AND ARKANSAS.

1. Louisiana.—Louisiana, so called in honor of Louis XIV. of France, was settled by French and Spanish colonists. The descendants of the former are called French Creoles.

Louisiana was purchased from France in 1803, and has since been a free outlet to the sea through the Mississippi.

2. The depression of the land is one of the marked physical features of this State. From the mouth of the Red river to the Gulf the level of the Mississippi river and its outlets—called bayous (*bə'ooz*)—is higher than that of the adjacent country.

The drainage, therefore, is *from* and not *toward* the watercourses.

The people speak of going *up* to the river instead of going *down* to it.



View of a levee in New Orleans. Notice the steamboat on the Mississippi river, the steamships and sailing vessels lying next to the levee. On the levee are cotton, staves, and other merchandise which are to be loaded on the ships. Notice the freight cars on the left.

MAP STUDIES.—In which of these States are lakes most numerous? Which has no seacoast? Which has the longest coast line?

Arkansas.—What portion is mountainous? Boundaries. What large river crosses this State? Describe the course of the White River. Name the capital. Describe Helena. Hot Springs. Pine Bluff. Fort Smith.

Louisiana.—What rivers separate Louisiana from Mississippi? What river flows across Louisiana? Into what river does the Washita flow? What river and lake between Louisiana and Texas? What river and bayou enter Grand Lake? Where is Lake Pontchartrain? Grand Lake? Name the bays on the coast. How many mouths has the Mississippi? Describe New Orleans. Shreveport. Baton Rouge.



View on the levee on the Mississippi. The river cannot be seen. The water that you see is called back-water, and a steamboat is bringing men to repair the levee. A road is at the right, and the home of a planter can be seen in the distance.

This depression exposes the country to fearful floods whenever a break occurs in the levee. Such a break is called a *crevasse*.

3. Louisiana is the first of the Southern States in commerce and manufactures. It produces nearly all the cane-sugar raised in the United States, more rice

than any other State, and a large amount of cotton.

The chief manufactures of Louisiana are sugar, lumber, rice, cottonseed oil, and jute bags.

4. Cities.—New Orleans is second in the South in its foreign commerce, and first in the South

Orleans ranks first in the United States in commerce, and

in population, commerce, and manufactures. It is the greatest market in the world for cotton, and one of the greatest for sugar and rice. It exports chiefly cotton and grain. It imports raw sugar, coffee, tropical fruits, and other merchandise. It has sugar refineries, rice mills, foundries, and other factories.

The levee here is very wide and upon it may be seen bales of cotton, barrels of sugar and rice, sacks of coffee, and boxes of other merchandise ready for shipment. On one side of the levee are wharves where steamships, sailing vessels, and steamboats lie, one after another, for more than five miles; here also are grain elevators and shipyards. Tulane University and other higher institutions of learning are located here.

Shreveport is an important railroad and trading center. It is the chief distributing point of north Louisiana.

Baton Rouge (*bat'un roozh*), the capital, is an important city. The State University is located here. **Alexandria** and **Lake Charles** manufacture cottonseed oil and lumber. **New Iberia** has mills for hulling and cleaning rice.

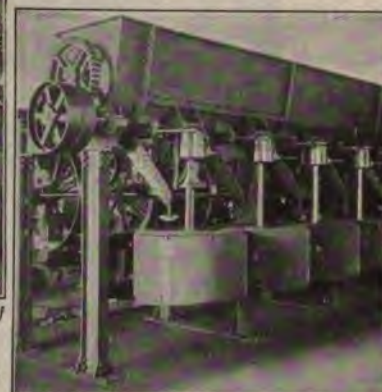
Oklahoma.—What is the southern boundary? What rivers cross this State? Name and locate the principal towns. Oklahoma. Perry. Ardmore. Muskogee. South McAlisterville. What is the capital?

Texas.—What bounds Texas on the north? On the southwest? What portion is mountainous? Where are the Apache Mountains? The Llano Estacado? What rivers form part of the boundaries? What river flows into Galveston Bay? Describe the Brazos. The Colorado. What river enters Sabine Lake? San Antonio Bay? Corpus Christi Bay? What tributary of the Rio Grande crosses the western part of the State? Name the bays on the coast. The islands. Describe the capital, Galveston. Houston. Dallas. San Antonio. Fort Worth. Waco. Sherman. Denison. Marshall. El Paso.



Making sugar in Louisiana. The cane comes down the slide and the juice is crushed out by rollers.

The juice is boiled to a thick syrup in each of these three vessels, called the "triple effect."



Centrifugal mills. They revolve rapidly, throwing off molasses through a fine wire netting, leaving dry grains of sugar.

SOLAR TIME—When it is Noon on the Meridian of Washington,

10:28 A.M.

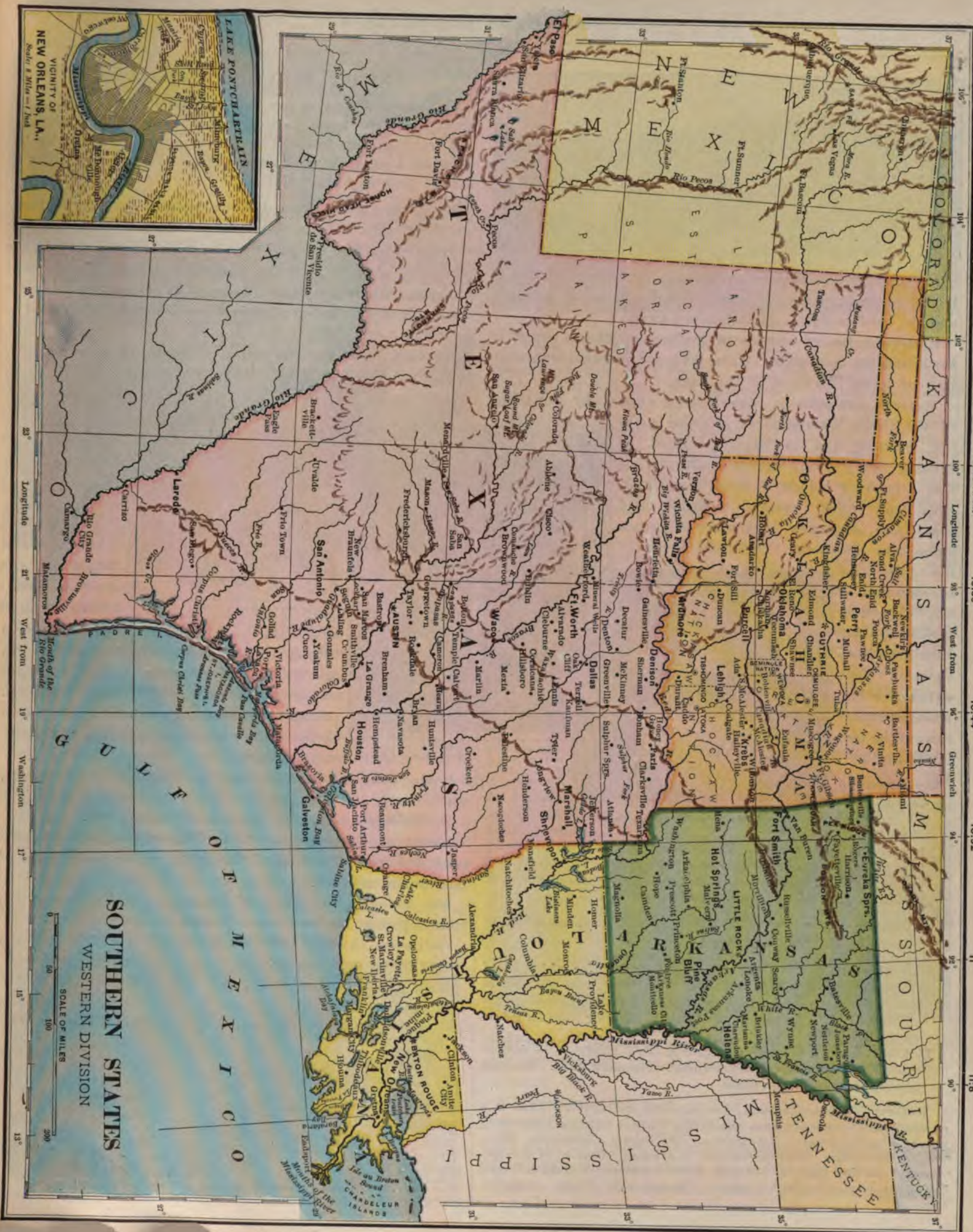
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View of the city of Hot Springs, Arkansas.

5. Arkansas.—Arkansas is rich in its productive soil and in its forests and minerals. Agriculture is the principal industry, and the chief products are cotton and corn.

Eastern Arkansas consists of lowlands which are a part of the Mississippi flood-plain. These lands are protected from overflow by levees like those in Louisiana.

Western Arkansas is rugged, being crossed by the ridges of the Ozark Mountains. It is a fine grazing country and is largely devoted to farming and stock raising. **Mining** is also a growing industry. Coal, iron, lead, zinc, and other minerals abound, and there are extensive quarries of sandstone and limestone. Arkansas leads in the production

of **bauxite**, a fine clay from which the metal aluminium is obtained. The **oilstone** and **whetstone** quarries are the best in the world.

The hardwood

the State contains the best bodies of hickory, and

to be found in the country. The value of the hard wood lumber cut from these forests exceeds that of any other State. In the western part of the State are numerous **hot springs**, celebrated for their medicinal qualities and much resorted to by invalids.

6. Cities.—**Little Rock**, the capital and chief city, is a center of trade, and manufactures cotton and lumber.

Pine Bluff, an important shipping point on the edge of the Flood Plain, manufactures cars, lumber, and furniture. **Fort Smith** is in the center of the coal regions at the head of navigation on the Arkansas River. **Helena** is an important shipping point for cotton on the Mississippi.

Hot Springs is a progressive, growing city. Here are the famous mineral springs which make it a winter and summer resort. **Eureka Springs** is also a health resort.

Review Topics.—Louisiana; how acquired and settled? What is a crevasse? In what does Louisiana rank first? Where do we get our upholstery moss? Mineral resources. Manufactures. New Orleans. Shreveport. Baton Rouge. Other cities. Name the resources of Arkansas. What is its principal industry? Its chief products? Describe eastern Arkansas. Western Arkansas. The mineral resources. The hot springs. The chief center of trade. Important towns.

XXXV. TEXAS AND OKLAHOMA.

1. Texas.—Texas is the largest State in the Union. It is about thirty-two times the size of Massachusetts. Its industries and transportation facilities have been rapidly developed by the unbounded energy of its people. Texas now has more miles of railway than any other State.

It was once a part of Mexico, but won its independence by the victory at San Jacinto in 1836. In 1845 it was annexed to the United States.

Texas ranks first in the Union in stock raising, first in the production of cotton, and first in the manufacture of cottonseed products. About one-fourth of our entire cotton crop is grown there. It ranks third in wool growing and third in the yield of petroleum.

Southern Texas is coast prairie. Eastern Texas is a timber belt. Next comes the Black famous "black waxy" land, and west of this is the Grand Prairie, a great grazing region. Beyond are the Great Plains and ranges of the Rocky Mountains, where little rain falls.



After the oil is pressed out, hard cakes are left about an inch thick. These are ground into cottonseed meal, which is packed into sacks and sold for fertilizer or for food for stock.

Its agricultural products include cotton, corn, oats, other grains, and fruits; rice and sugar on the coast prairies, and wheat in the north.

It manufactures lumber, woolen and cotton cloths, leather goods, machinery, and many other articles.

Coal, quicksilver, salt, gypsum, granite, sandstone, limestone, marble, iron, and other useful minerals are found.

2. Cities.—**Austin**, the capital, is a beautiful city.

Dallas is a shipping point for agricultural machinery and supplies, and leads the cities of the South in the manufacture of harness and saddlery.

San Antonio, the oldest and largest city in the State, is the most important business center of western Texas.

Galveston, the chief port, has one of the best harbors on the



View of the harbor at Galveston, showing the wharves where the railroads bring cotton and produce for export. In the distance can be seen a breakwater built by the Government to protect the harbor.

gulf, and is the fourth port in the country. It exports largely cotton, hides, wool, and wheat. **Houston** is a leading railroad and manufacturing center, and the largest cotton market in the State. **Fort Worth** is an important railroad center and has car shops and meat-packing establishments. **Waco**, in the cotton belt, manufactures cotton and woolen goods.

El Paso and **Laredo**, on the Rio Grande, have an important and growing trade with Mexico. **Denison** is a shipping point and **Sherman** has one of the largest cotton-seed-oil mills in the world. **Beaumont** is the center of famous oil-fields, and has rice and lumber mills. **Corsicana** also is noted for petroleum. **Palestine** and **Cleburne** have large railroad shops. The shops of the Frisco lines are at Cleburne, and of the International and Great Northern at Palestine. **Temple** and **Terrell** are growing trade centers.



In the Ouachita Valley, Oklahoma.

3. Oklahoma.—In 1890 Oklahoma was separated from the Indian Territory and organized as a territory. As soon as the public lands were thrown open for settlement thousands of people flocked in. Houses were built and cities were established in a few days' time. In 1906 the territories were again united to form the new State of Oklahoma. This State has a mild climate and raises large crops of corn, cotton, and potatoes. Wheat, oats, and other grains are also grown. In the western part of the State grazing is the leading industry, this State ranking fifth in the number of cattle on the ranches, and eighth in the number of hogs raised.

Mining industries are not well developed. Gypsum is the leading mineral. Coal and iron are also mined. The Indians of the State that formerly lived upon reservations will now become citizens of the United States and of the new State of Oklahoma.

The tribes include the Cherokees, Chickasaws, Choctaws, Creeks, and Seminoles. They are civilized; they till the soil, raise cattle, and have schools, churches, and newspapers.

4. Cities.—The chief town is **Oklahoma**. It is an important railroad center and has manufactures of farm machinery, cotton-seed oil, and flour. The Epworth University is located here. **Guthrie**, the capital, is thirty miles from Oklahoma and has similar industries.

Perry is a center for Indian trade. **Ardmore**, in the Chickasaw country, is the center of coal mining and the seat of Hargrove College. **Muscogee**, a town of the Creeks, is a leading educational center. **South McAlistier** is in the coal district. **Elreno** and **Enid** are trading and shipping centers.

Review Topics.—How does Texas rank in size? How was it acquired by the United States? For what is it famed? What are some of the products? In what does it lead? What of its wool? Its cotton and wheat lands? Its mineral

XXXVI. CENTRAL STATES.



In the famous blue-grass region, Kentucky.

STATE.	Area in Sqr. Miles	Population, 1900.	Capitals.	Chief Cities and their Population.
Kentucky	40,400	2,147,174	Frankfort	Louisville ... 204,731
Ohio	41,060	4,157,545	Columbus....	Cincinnati... 325,902
Indiana	36,350	2,516,462	Indianapolis..	Indianapolis. 169,164
Illinois	56,650	4,821,550	Springfield...	Chicago..... 1,698,575
Michigan.....	58,915	2,420,982	Lansing.....	Detroit..... 285,704
Wisconsin	56,040	2,069,042	Madison	Milwaukee .. 285,315
Missouri	69,415	3,106,665	Jefferson City.	St. Louis.... 575,238
Iowa	56,025	2,231,853	Des Moines ...	Des Moines.. 62,139
Minnesota	83,365	1,751,394	St. Paul.....	Minneapolis. 202,718
Kansas.....	82,080	1,470,495	Topeka.....	Kansas City. 51,418
Nebraska.....	77,510	1,066,300	Lincoln.....	Omaha..... 102,555
North Dakota....	70,795	319,146	Bismarck.....	Fargo..... 9,589
South Dakota....	77,650	401,570	Pierre.....	Sioux-Falls.. 10,266

resources? Describe Austin. Dallas. San Antonio. Galveston. Houston. Fort Worth. Denison. Waco. Brownsville. Laredo. El Paso. Oklahoma.

1. Position and Surface.—The Central States are all inland, and occupy nearly the whole of what is called the **Upper Mississippi Valley**.

The surface is generally level, or rolling, with a gentle inclination toward the Mississippi, which occupies the line of lowest level from north to south.

The only important elevations are the Black Hills of South Dakota, the hills of Michigan and Minnesota, the Ozark



In the fertile farming section of Illinois.

Mountains, Pilot Knob, and Iron Mountains in Missouri and southern Missouri, and the low mountains in southeastern Kentucky.

2. Prairies.—The most striking feature of these States is their vast prairies. Long ago these were treeless, covered with grass, gay with flowers, and alive with herds of buffaloes. Their soil is usually free from stones, and exceedingly fertile.

Indiana, Illinois, Wisconsin, Iowa, Kansas, Nebraska, Minnesota, and the Dakotas are wholly or largely prairie regions.

SOLAR TIME—When it is Noon on the Meridian of Washington,

11:16 A.M.

11:20

11:24 11:28 11:32 11:36 11:40 11:44

CENTRAL STATES EASTERN DIVISION

SCALE OF MILES





A harvester at work.

3. Rivers.—The Central States are drained by the Mississippi and its tributaries. From all of these States, excepting Michigan, streams flow into the Mississippi, which carries the water into the Gulf of Mexico.

Situated between the two great watersheds of the country, and draining an area of such vast extent, the **Mississippi** receives immense volumes of water. When its eastern tributaries are swollen by heavy rains at the same time that the tributaries from the west, owing to the melting of the snows upon the Rocky Mountains, are discharging unusually large quantities of water, the Mississippi receives two floods at once. It then sometimes overflows its banks and attains the proportions of a sea. In the spring flood of 1867, the Mississippi was estimated to be, at Memphis, 40 miles broad.

The eastern tributaries of the great river, as compared with the western, are shorter, more rapid, and not navigable to so great a distance.

This is because the Mississippi does not occupy the middle of the valley; it is far to the east of the middle, being, below its junction with the **Ohio**, not very far from the most western range of the Appalachians.

4. Climate.—These States have an inland, or continental, climate. In the northern section the winters are long and severe, the summers are short and hot; in the southern the winters are milder, and the summers longer.

5. Minerals.—The Central States are rich in minerals. The coal-fields of Ohio, Indiana, Illinois, Iowa, Missouri, and Kentucky are among the largest in the world. They embrace an area of many thousand square miles.

Masses of native copper, tons

in weight, have been quarried out of the mines in the Lake Superior copper region.

Iron is abundant in the Lake Superior region, both in Minnesota, Michigan, and Wisconsin, and also in Ohio, Kentucky, and Missouri. **Lead** and **zinc** abound in Missouri, Kansas, and Wisconsin; **gold** and **silver** in South Dakota.

Michigan produces more salt than any other State except New York.

Ohio and Indiana furnish much petroleum.

6. The Central States are the great grain, lumber, and meat-producing region of the country. Potatoes, hay, tobacco, sugar-



Logging on the Menominee river at Menominee, Michigan.

beets, flax, hemp, and fruits are also important crops. The wool clip in Ohio and Michigan is very great.

The manufactures of these States are enormously valuable and include farming implements, railroad cars, carriages, packed meat, lumber, and tobacco, in all of which this section leads.

The fisheries of the Great Lakes are a profitable source of industry in Michigan, Minnesota, and Wisconsin. Whitefish, lake herring, trout, and sturgeon are taken in enormous quantities.

The commerce of the Central States consists chiefly in the sale of flour, beef, pork, lard, machinery, copper, lead, iron, lumber, wheat, corn, and oats.

Many of these products are sold in the manufacturing cities of the Eastern States and to foreign countries, from which these States buy textile goods, boots and shoes, hardware, and various manufactures.



Unloading iron ore from lake steamers at Cleveland. One end of the long steel crane is lowered to the deck; the ore is hoisted and put in cars, which run to the other end of the crane and dump it on the docks.

MAP STUDIES.—In which of these States are mountains found? Which border on Lake Michigan? On Lake Erie? On the Ohio? On the Mississippi?

Kentucky.—What mountains separate Kentucky from Virginia? What river north? Northeast? West? Name the principal tributaries of the Ohio flowing through Kentucky. What river enters the Ohio near Newport? What two rivers from Tennessee cross the western part of the State? Where does the Cumberland river rise? Locate Louisville. Covington. Newport. Lexington. Paducah. Henderson. Bowling Green. Frankfort. Winchester. Paris. Ashland. Maysville. Mammoth Cave.

Ohio.—What river separates Ohio from West Virginia? From Kentucky? What lake north? What rivers flow into the Ohio? In what direction does the Maumee river flow? In what part of the State is the capital? Locate Cincinnati. Cleveland. Columbus. Toledo. Dayton. Youngstown. Springfield. Akron. Zanesville. Sandusky. Hamilton. Newark. Mansfield. Portsmouth.

Indiana.—What great lake north? What river separates Indiana from Kentucky? What river forms part of the boundary between Indiana and Illinois? What are the branches of the White river? In what directions does the Wabash flow? What is the capital of the State, and where? Where is Evansville? Fort Wayne? Terre Haute? South Bend? New Albany? Richmond? Lafayette? Logansport? Elkhart? Muncie? Anderson? Vincennes? Bloomington?

Illinois.—What river west? What lake and river east? What river south? Into what does the Illinois flow? Into what does Rock river flow? Where is the Kaskaskia? The Sangamon? The Little Wabash? Where is Lake Peoria? Name the capital. What great city on Lake Michigan? Where is Peoria? Quincy? Joliet? Rockford? Bloomington? Aurora? Decatur? Rock Island? Alton? Cairo?

Routes of Travel.—On what body of water would you travel in going by steamboat from Cincinnati to Cairo? Cairo to Quincy? Cleveland to Fort Wayne? Cincinnati to Wheeling, West Va.? Louisville to Nashville? Terre Haute to New Albany?

The **Mississippi** and its tributaries give to the people of the Central States a natural outlet to the Gulf for their produce. The Great Lakes are inland seas, which furnish, in connection with the St. Lawrence and the canals, water routes to the Atlantic, and thus to Europe.

A vast network of **railroads** covers this section, providing numerous additional



Manufacturing plows at the Avery Works, Louisville, Ky. The first room, at the top of the page, shows the casting room where the melted metal is poured into molds to make the shares and other iron parts of the plow. The second is the wood-working room. The third is a "stocking" or setting-up room, where the different parts are put together.

highways for trade, and serving, with their eastern and southern connections, to transmit the merchandise of the Central States to the Atlantic seaboard or to the Gulf. Among the **commercial** cities are Chicago, St. Louis, Cincinnati, Detroit, Louisville, St. Paul, Minneapolis, Duluth, Omaha, Indianapolis, Milwaukee, and Cleveland.

Review Topics.—Location of the Central States and their capitals. Surface. Elevations. Prairies. What States in the Prairie region? What causes the floods? Compare the eastern and the western tributaries of the Mississippi. The climate. Coal fields. Copper. Iron. Lead. Salt. Agriculture, and manufacturing. Fisheries. The commerce. Natural advantages for commerce. How connected with the Atlantic seaboard? Commercial cities.

XXXVII. KENTUCKY AND OHIO.

1. Kentucky.—Kentucky surpasses every other State in the production of tobacco and hemp, though corn is the most valuable crop. The famous blue-grass region, in the Licking and Kentucky river valleys, is one of the finest grazing districts in the United States. Its horses and cattle are very celebrated. Extensive forests of hard wood and rich deposits of coal and iron are found in Kentucky.

The **Mammoth Cave**, in the central part of the State, is one of the most remarkable caverns in the world. It extends underground for miles, but has never been thoroughly explored. It contains a navigable lake of fresh water. The roofs and walls of its chambers are covered with glistening stalactites. The fish that live in its waters are blind.

2. Cities.—The chief manufacturing and commercial city is **Louisville**, the largest tobacco market in the world. Its manufactures include tobacco, flour, refined cotton-seed oil, distilled and malt liquors, lumber, leather, and agricultural implements. The selling of these and other articles makes a large wholesale trade.

It is at the falls of the Ohio, to pass which a canal has been constructed capacious enough to admit the largest steamers that ply on the river.

Covington and **Newport**, opposite Cincinnati, manufacture machinery and building materials. **Lexington**, in the midst of the blue-grass country, is a beautiful city. It is a center of the tobacco trade, has extensive manufactures, and is noted for its institutions of learning.



Paducah, near the mouth of the Tennessee, is an important shipping point for tobacco, pork, and grain. **Owensboro** ships large quantities of tobacco. **Henderson** has cotton and lumber mills. **Frankfort**, the capital of the State, is an educational and manufacturing center. **Maysville**, on the Ohio, is a leading hemp market and manufactures flour and lumber.

3. Ohio.—Ohio is the fourth State of the Union in population. The people are largely engaged in manufacturing. The State ranks first in the manufacture

of carriages and clay products, and very high in the production of steel, agricultural implements, and foods.

The coal mines in eastern Ohio are very productive, and the petroleum wells are next in value to those of California.

Ohio is also a leading agricultural State. Grain, live stock, and dairy products are all largely produced. This State ranks high in the production of wool. Tobacco and grapes are extensively cultivated. The Catawba wine is noted.

The State has remarkable commercial advantages.

The **Ohio river** and the **canals** connecting it with Toledo and Cleveland furnish a cheap waterway from the State to the coal, steel, and iron regions of Pennsylvania, West Virginia, and the States bordering on the Great Lakes, and also with the markets of the Mississippi Valley. The Erie Canal and the railways of New York, Pennsylvania, and Maryland connect it with the seaboard.

4. Cities.—The largest city in Ohio is **Cleveland**; it is finely situated on Lake Erie. It has easy access to the coal and oil of Pennsylvania and to the iron of the Lake Superior region. It is therefore noted for the manufacture of iron and steel and the refining of oil. Steel ships and machinery of every sort are made. Meat packing and the brewing of malt liquors are other leading industries.

Cincinnati is the largest and chief commercial and manufacturing city of the Ohio valley. It has river and railway connections with all parts of the country. Its foundries and machine shops manufacture iron and steel brought through the canals



Lumber yard and railroad bridge at Cleveland. The tall buildings of the city are seen in the background.

from the cities of the smelting region along Lake Erie. Clothing, leather goods, and liquors are the other leading manufactures.

Columbus, the state capital, is centrally situated and has large iron and steel industries. Leather goods and vehicles are next in importance. **Toledo** is an important grain market and has large flouring mills and iron foundries.

Dayton manufactures cash registers, cars, and machinery; **Youngs-**

town, near the Pennsylvania border, ranks next to Cleveland in the manufacture of iron and steel; **Akron** manufactures rubber tires and elastic goods; **Spring-**

field and **Canton** are noted for agricultural implements; **Hamilton**, **Zanesville**, **Piqua**, **Tiffin**, and **Newark** are centers for the manufacture of machinery, clay products, and building materials. **Sandusky** has an extensive wine trade and manufactures hardware and lumber.

Review Topics.—In what does Kentucky excel? Describe the blue-grass region. What minerals in the State? Describe the Mammoth Cave. How did the early settlers get their crops to market? Describe Louisville. Covington and Newport. Lexington. Frankfort. Paducah. Maysville. Owensboro. Henderson. Population of Ohio. Mineral Products. Agricultural. How is Ohio connected with the Mississippi Valley and the seaboard? Describe Cincinnati. Cleveland. Columbus. Toledo. Other cities.

XXXVIII. INDIANA AND ILLINOIS.

1. Indiana and Illinois.—These States are in the prairie region; they have no mountains. Their latitude and climate, their productions and pursuits, are the same. They are among the greatest corn and wheat growing States in the country.

2. Indiana is the eighth State of the Union in population, and one of the leading Central States in agriculture, stock-raising, wool-growing, and manufacturing. Most of the trunk lines of railway connecting the eastern and western parts of the country cross the State. This fact helps to promote its manufacturing and commercial industries.

Rich coal-fields, petroleum, and natural gas are found near its southern borders.



The **Wyandot Cave** rivals the Mammoth Cave in extent and grandeur. The Bedford limestone, found in the same section, has a national reputation for firmness and is a favorite building stone.

3. Cities.—The capital of the State is **Indianapolis**, the largest and the most important commercial and manufacturing city. The numerous lines of railway which center here furnish it with an abundance of raw materials

for its meat packing, flouring, woodworking, and steel industries.

Indiana has nearly twenty cities of over ten thousand population each, and more than fifty with a population of over five thousand. Most of these towns are important manufacturing and railroad centers.

Evansville is noted for its flour and lumber products. **South Bend** has the largest establishment in the country for the manufacture of vehicles. **Fort Wayne** has large car and machine shops, and slaughtering and meat-packing establishments. **Terre Haute** ranks second in the manufacture of distilled liquors. **Muncie** manufactures iron, steel, and fruit jars; **New Albany**, machinery and leather; **Anderson**, steel, glass, and building materials; **Richmond** and **Lafayette**, agricultural implements. **Kokomo** and **Marion** are in the natural-gas region and manufacture glass. **Michigan City** and **Hammond** are largely engaged in the making of railroad supplies. **Logansport** manufactures machinery and vehicles. **Elwood** and **Vincennes** have iron works. **Elkhart** has paper mills and railroad shops.

4. Illinois is now the third State in the Union in population. It is in the prairie region, and has a very fertile soil. Its large crops of corn, oats, and wheat, and its high rank in stock-raising have made it the chief food-producing State. It

ranks first in the packing of meat and third in manufacturing. Its coal fields, which underlie nearly two-thirds of the State, have greatly helped its industries and made

it next to Pennsylvania in the production of steel. Lead is found and limestone of

excellent quality for building purposes.

5. Cities.—**Chicago** is the most important commercial center on the Great Lakes, and the second in the country. It is the greatest grain market in the world, and the leading market in the United States for live stock, pork, and lumber.

It receives a large part of the produce of the Central States, and



Making automobile tires at the Diamond Rubber Works, Akron, O. After the rubber is mixed with materials to harden it, it is then passed between steel rollers which press it into sheets, as shown in the first view. The second view shows how the tires are built up by laying strips of rubber together; the tires are then vulcanized by placing them in steam-heated chambers which melt the several parts into one solid piece.



The manufacture of wheels at the Studebaker factory, South Bend, Ind. 1. Putting the spokes and felloes together; 2. Welding tires by electricity; 3. Putting the steel boxes into the hubs by hydraulic pressure; 4. The tires are heated white-hot in the furnace and placed on the wheels; the wheel then drops into a tank of water which cools the tire, causing it to contract, binding all parts of the wheel firmly together.

transmits it to eastern and foreign markets. It receives eastern and foreign goods, and distributes them throughout the northwest. Railways and water routes connect it with every part of the country, and vessels sail direct to foreign ports.

The railway trains that enter or leave the city daily number about two thousand, making it the greatest railroad center in the world.

Grain is brought to Chicago in bulk, and raised into elevator warehouses by endless chains with buckets attached. It is then discharged through spouts into boats or cars.

In the value of its manufactures Chicago ranks next to New York. Its facilities for transportation by way of the lakes bring to it the iron, lumber, and fuel needed for its great industry, and have made it the first city in its lumber and furniture products, and the second in its output of iron and steel. It is connected also by canal with the Mississippi river system. This, and the water route by way of the Great Lakes and the Erie Canal, give it cheap transportation to both the Atlantic and Gulf ports. It is the seat of the **University of Chicago**, one of the most richly endowed educational institutions in the United States.

Springfield, the capital, is in the midst of a productive country, and the center of an active trade.

Peoria, the second city in the State, leads in the manufacture of distilled liquors. It is also an important market for grain and farming implements. **East St. Louis**, on the opposite side of the Mississippi from



A street corner in Chicago, showing one of the tall steel frame buildings.



The meat industry in Chicago. 1. The great stockyards where cattle are brought on trains from the West. 2. Cold storage room of a great packing house, where beef is hung awaiting shipment. The temperature of this room is at all times near freezing point. 3. Stuffing sausages in sausage department. 4. Washing butterine preparatory to making oleomargarine.



St. Louis, is noted as a railway center and as a place for the transfer of freight between eastern and western lines. It has large meat-packing establishments, machine and car shops. **Joliet**, on the Chicago and Illinois Canal, manufactures iron, steel, machinery, and building materials.

Besides these larger towns, Illinois has about twenty others with a population of over ten thousand. Many of these are engaged in the manufacture of farm machinery, in which Illinois leads all the States. Among these are **Decatur**, **Springfield**, **Rockford**, and **Peoria**. **Quincy** is an important trade-

SOLAR TIME—When it is Noon on the Meridian of Washington, 10:28 A. M.



center and has large foundries and lumber and iron manufacture iron ware, clothing, and products and watches. **Evanston** is the seat of



large glass and car shops.

Rock Island, situated on the Mississippi, is noted for its fine bridges and large iron

Review Topics.—In what region do Indiana and Illinois lie? Describe their surface. Rank of Indiana. Population. Agriculture and stock raising. Its coal fields. Describe Indianapolis. Evansville. What is said of other places? How does Illinois rank in population? In what does it surpass other States? Describe Chicago. Its distributing business. Its trains. Elevators. Some manufacturing industry of each.



establishments. Aurora and Bloomington are noted for dairy products. Elgin is noted for dairy products. Western University. Belleville has a large woolen mill. Jacksonville has woolen mills and manufactures plows and wagons. A large railroad and manufacturing center is located opposite Davenport, Iowa. Two large cities are here. It has a government arsenal and shipyards.



Important industries? Mineral resources. Describe the important cities of Illinois and

MAP STUDIES.—Which of the Great Lakes on the northern boundary? Which State is bordered on the south by Lake Superior? Which States are bordered by the Mississippi? Which State the greatest number of lakes? How are lakes Superior and Huron connected? Lakes Michigan and Huron? Lake Huron and Lake Erie?

Michigan.—How is Michigan divided? What portion is mountainous? What lake bounds the southern peninsula? What three lakes on the east? What bays on the northern peninsula? Where is Green Bay? Isle Royale? Name the capital. How is it situated? Where is Detroit? Grand Rapids? Saginaw? Bay City? Muskegon? Jackson? Kalamazoo? Port Huron? Battle Creek?

Wisconsin.—Trace the Wisconsin River. The Chippewa. What river forms part of the north-eastern boundary? In what direction does Fox River flow? What lake does it drain? Where is Madison? Milwaukee? La Crosse? Janesville? Oshkosh? Racine? Eau Claire? Sheboygan? Ashland? Superior? Appleton? Watertown?

Minnesota.—What ridge crosses the northern part of this State? What lakes and river form a part of the northern boundary? What river separates Minnesota from North Dakota? Of what is the Red River the outlet? How do the waters of Big Stone Lake reach the sea? Trace the Minnesota. Where does the Mississippi rise? What lake does it drain? What is the capital? Locate Minneapolis, Duluth, Winona, Stillwater, Brainerd, Red Wing.

North and South Dakota.—What plateau traverses both States? (See physical map of United States.) What large river on the eastern side of the dividing plateau? On the western? What tributary of the Missouri has its sources in the Black Hills? What is the capital of North Dakota? Of South Dakota? Where is Fargo? Grand Forks? The Black Hills? Yankton? Sioux Falls?

Routes of Travel.—How would you go by water from Chicago to Detroit? Milwaukee to Duluth? Milwaukee to Fond du Lac? Isle Royale to Lake Erie?

XXXIX. MICHIGAN, WISCONSIN, MINNESOTA, NORTH AND SOUTH DAKOTA.

1. Michigan.—Michigan is divided into two peninsulas: a northern and a southern. It is nearly surrounded by three of the Great Lakes; hence its climate is milder than that of any other inland State in the same latitude.

The **Pictured Rocks** on the southern shore of Lake Superior are colored as though painted. They are cliffs of sandstone.

This State has great mineral wealth.

The central and northern parts supply about one-third of the iron and copper ore and salt produced in the United States. The mines of native copper on the shores of Lake Superior are the richest in the world, and make Michigan the second among the States in the production of this metal. There are also large deposits of coal in the southern peninsula. Gypsum also is found in large amounts. It is used as a fertilizer or is made into plaster of Paris.

Michigan is a rich agricultural country.

The mild climate of the western shore of the southern peninsula makes it one of the leading fruit regions. Corn, oats, potatoes, and hay are leading crops. In the production of beet sugar and potatoes Michigan is second among the States. It also ranks high in live stock, and in the production of wool and dairy products. Michigan formerly was first in the production of pine lumber, but the forests have been largely cut away, and it is now second to Wisconsin. Great quantities of hard wood lumber are brought into the State for the manufacture of furniture, in which Michigan ranks next to New York and Illinois.

The lake shore of Michigan is more than a thousand miles in length—greater than the sea-coast of any State except Florida. The lake trade is therefore very large. Ores and lumber, from the Lake Superior shores, and wheat and flour



This view shows the trimming room. Here doors are hung, drawers fitted, mirrors inserted, and all fittings, such as handles and knobs, are put on.



The second view shows the cabinet room. Here all the parts are smoothly and accurately finished and are turned over to cabinet-makers to be put together. The strength and durability of furniture depends upon the manner in which this work is done.

from the ports of Wisconsin and Minnesota, are carried to the various ports along the lakes. The ship canal, around the Falls of St. Mary or The Soo, connecting Lake Superior and Lake Huron, carries more freight than any other canal in the world. Ores, grain and lumber are the chief articles carried.

2. Cities.—**Detroit** is the largest city and the most important lake port in the State. Its chief manufactures are iron and steel, machinery, tobacco, drugs, and paint. It leads in the manufacture and sale of automobiles, and has salt works and wood-working plants of every description. **Lansing** is the capital of the State and has iron works and machine shops.

Grand Rapids, the second city in size, has over thirty factories for the making of furniture. **Saginaw**, **Muskegon**, **Manistee**, **Bay**

City, and **Alpena** are all engaged in the manufacture of lumber and lumber products. Ships are built at **Bay City** and **Port Huron**. **Battle Creek**

manufactures agricultural machinery and cars. **Menominee** has the largest beet-sugar factory in the United States. **Kalamazoo** is noted for its celery gardens; **Flint** for its vehicles; **Adrian** for wire fencing, and both **Adrian** and **Jackson** for piano and organ works. **Ann Arbor** is the seat of Michigan University, one of the largest in the United States.

Ispheming is the center of a rich iron ore district.

The region at the head of Saginaw Bay has numerous salt wells, from the water of which salt is manufactured at Saginaw and Bay City.

3. Wisconsin.—Southern Wisconsin consists of rolling prairies of very rich soil. Oats, corn, barley, hay, potatoes, and tobacco are the principal crops. Stock raising, dairy farming, and fruit growing are large and increasing interests and furnish a large trade.

The northern part of the State has extensive forests of pine, hemlock, spruce, and hard wood, which make it the leading State in lumber products.

The manufacture of flour is an immense industry. Much wheat is imported from neighboring States for the purpose. The manufacture of cheese and butter, tanning and finishing leather, slaughtering and meat packing, are important industries.

Wisconsin has colder winters than Michigan, as the west and southwest winds sweep across the land instead of over water.

Vast quantities of zinc and iron, and some lead, are mined.

4. Cities.—The largest city in the State is **Milwaukee**, the chief commercial and manufacturing center, and one of the



A celery field at Kalamazoo, Mich.



Three steps in the manufacture of furniture at Grand Rapids. In the first room thin layers of mahogany or other cabinet woods, called veneer, are glued to the parts which are to be made into furniture. The parts are then put under heavy pressure to make the veneer adhere firmly.

and increasing interests and furnish a large trade.



Works of the Case Threshing-Machine Company at Racine. Notice the engines used to run the machines and the cases of goods directed to Buenos Aires.

factures lumber into various forms, of which farm wagons and agricultural machinery are the chief. The preparation of flax fiber is also important. **Stillwater** is engaged in the manufacture of lumber as well as binding twine, boots and shoes, and steamboat and farm machinery. **Mankato** has flour mills, stone and cement industries, and iron foundries.

8. North and South Dakota.—North and South Dakota are watered by the upper Missouri, the Red river of the North, and their tributaries. In soil and productions they resemble Minnesota. Stock raising is important in both States.

9. North Dakota.—The principal industry of the State is agriculture, and wheat, oats, barley, and flax are the chief grains grown. North Dakota ranks second among the States in the production of spring wheat, and first in flaxseed.

The western half of the State is underlaid with vast beds of lignite, a low grade of coal. Fine pottery clays are known to exist.

Cities.—**Bismarck** is the capital and a distributing point of supplies for army posts and Indian agencies. **Fargo**, the largest city, has large packing industries, manufactures machinery, and is the second largest distributing point in the United States for farm machinery. **Grand Forks** manufactures boilers, flour, and lumber. **Jamestown** and **Valley City** are in the wheat section and have grain elevators. **Grafton** is a



A packing room. The flour has now reached the bottom of the mill. On each floor it has undergone some part of the manufacturing process. Here it is packed by machinery into barrels and bags and is ready for shipment.

flaxseed, fourth in wheat, and high in beef cattle. Dairying is an important industry.

The only elevations in the State are the Black Hills. Here are very rich gold and silver mines that are extensively worked, the

State ranking fourth in gold. Gypsum, mica, petroleum, natural gas, and fine building stones abound in the State. The eastern part of the State has many artesian wells which supply not only water for domestic and agricultural purposes, but power for mills and factories. There is considerable flour milling and cheese and butter making in the State.

Cities.—**Sioux Falls**,



The manufacture of flour at Minneapolis. The wheat is first raised by elevators to the top of the mill, which is usually a building from eight to ten stories in height. After the grain is separated from chaff and seeds, it is thoroughly scoured and prepared for grinding. The first picture shows a grinding room, where the grain is passed between steel or porcelain rollers.

the largest city, manufactures agricultural implements, windmills, and other farming utensils. **Pierre** is the capital and is the largest center of the State for handling live stock. **Lead City**, situated in the Black Hills region, has one of the largest gold mines in the

world. The extraction of this metal from the ore and the manufacture of jewelry are the principal industries. **Yankton**, **Huron**, **Mitchell**, and **Aberdeen** are in the wheat-growing section, and have grain elevators and flour mills. **Aberdeen** is supplied with water and power from flowing artesian wells. **Vermillion** is the seat of the State University; and **Brookings**, of an agricultural college.

Review Topics.—Divisions of Michigan. Climate. Mineral resources. Lumber Product. Lake shore. Detroit. Lansing. Grand Rapids. Bay City. Saginaw. Muskegon. Escanaba. Ann Arbor. Name other places. Describe the surface of Wisconsin. Compare its climate with that of Michigan. Mineral resources. Resemblance to Michigan. Leading products. Describe Madison. Milwaukee. Name other thriving places. Oshkosh. Racine. Upon what three terraces do the Great Lakes lie? Height of Lake Superior terrace. How many vessels descend from this height? Describe the commerce of the Great Lakes. What elevation in Minnesota? What rivers rise upon the Height of Land? Direction of flow. Waterfalls. Climate. Rank as a wheat growing State. The lumber trade. Minneapolis. St. Paul. Duluth. Winona. Stillwater. How are the Dakotas like Minnesota? Their chief crops. The chief industries. Chief towns in North Dakota. In South Dakota. Minerals in South Dakota?

10. South Dakota.

—The grain productions of South Dakota are the same as those of North Dakota, but include also the finest of corn. The

State ranks third in

MAP STUDIES.—Which of these States is mountainous? Which ones border on the Mississippi? On the Missouri? What river partly bounds them all?

Iowa.—What river separates Iowa from Wisconsin and Illinois? From Dakota? From Nebraska? In what direction do the tributaries of the Mississippi in this State flow? What are the chief branches of the Missouri in Iowa? What cities are on the Mississippi river?

Missouri.—What mountains in southern Missouri? What river forms the eastern boundary? Part of the western boundary? Where does the Osage enter the Missouri? What river joins the Missouri at Kansas City? What is the capital?

Kansas.—Into what does the Kansas river flow? What river traverses the southwestern part of the State? What great river forms part of the northeastern boundary? What part of the State has the most towns? What is the capital?

Nebraska.—What river forms the eastern boundary? What is the general slope of the country? What river crosses the State? In what part of the State are most of the towns? What and where is the capital?

Routes of Travel.—How would you go by steamboat from St. Louis to Sioux City? From Dubuque to Cairo? From Minneapolis to Chicago? From Bismarck to Bay City?

SOLAR TIME - When It's Noon on the Meridian of Washington,

10:36 A.M.

10:44

10:52

11:8



XL. MISSOURI, IOWA, KANSAS, AND NEBRASKA.

1. Missouri and Iowa.—The climate, soil, and production of these States correspond to those of Kentucky, Ohio, and Illinois.



Views showing the manufacture of plug tobacco at the Liggett & Myers-Drummond factory, St. Louis. The leaves are stripped from the stalks and fed into the upright pneumatic pipes, which carry them into another building.

the Mississippi. North of the Missouri and Osage rivers is a prairie country. South of these rivers it is hilly and rugged. The southern section has considerable mineral wealth, producing zinc, lead, and much coal. In the production of lead and zinc ores Missouri ranks first among the States. Corn is the leading farm crop, the State ranking fourth in its production. Missouri mules rank first in quality and bring the highest prices.

Other important products are wheat, tobacco, wool, potatoes, and hay. Vineyards and orchards abound and excellent wines are produced.

Missouri is an important manufacturing State and ranks first in the manufacture of chewing and smoking tobacco and snuff. It ranks third in packed meats.

3. Cities.—**St. Louis**, as its name implies, was first settled by the French. It is the largest city in the Mississippi Valley and the fourth in size in the United States. It is also the most important commercial center west of the Mississippi, receiving and distributing the products of both the East and West.

Its situation at the meeting of two great rivers in a region embracing thousands of square miles of fertile land makes it the center of a vast trade. It is also the fourth city of the country in the value of its manufactures, the chief of these being tobacco products, malt



A street in St. Louis. Notice the elevated railway structure.

Immense crops of grain and large numbers of cattle, hogs, and sheep are raised in Iowa and northern Missouri.

2. Missouri is the most populous State west of



The leaves are dipped into a solution of licorice and weighed into packages of uniform size. They are then made into plugs by hand.



The plugs, after being partially pressed by hand, are here put into hydraulic presses and subjected to a pressure of several tons. This gives them a permanent form. The foreground of the picture shows the cases into which the plugs are packed.

packing are the largest industries. The making of butter, cheese, and condensed milk, and the manufacture of flour and lumber are next in importance.

A great many **pearl buttons** are made from the shell of the fresh-water mussel. Bituminous coal is the only important mineral product, Iowa ranking first in its production among the States west of the Mississippi.

5. Cities.—**Des Moines**, the capital and largest city, is in the midst of rich coal fields. It is the chief cattle and grain market in the State, manufactures medicines and flour, and is a printing and publishing center. **Dubuque**, the second city, has lumber mills, and manufactures clothing and vehicles. **Sioux City** is on the Missouri river, at the junction of important railroads; it is a milling center and has other important manufacturing industries. **Davenport** is well located on the Mississippi near the rapids, which furnish great water power. It is a grain market, manufactures machinery, has meat-packing establishments, manufactures tobacco products, and refines sugar.

Cedar Rapids has flour and furniture mills; **Burlington**, marble works and machine shops; **Council Bluffs**, car and carriage factories. **Clinton**, planing mills, carriage and furniture factories. **Ottumwa** is engaged in meat packing and in the manufacture of

liquors, packed meats, machinery, clothing, cars, and flour. Many of these products are sent by water to New Orleans and thence to foreign countries. Railways also connect St. Louis with the Atlantic, Pacific, and Gulf ports and carry the larger part of its trade.

Kansas City, on the Missouri river, is the second city of the State and an important railroad and commercial center. It is the second live-stock market in the world. It is continuous with Kansas City in Kansas, the middle of a street being the dividing line. Its manufactures consist largely of flour and building material. **St. Joseph**, the third city, is the center of trade for north-western Missouri. It is in a coal and natural gas region, has large meat-packing establishments, and ranks first in the State in the manufacture of saddlery and harness.

Joplin is the leading lead and zinc region and manufactures the paint called white lead. It also has machine shops and flour mills. **Springfield** manufactures flour and vehicles. **Sedalia** is a railway center and has extensive car shops and clothing factories. **Hannibal** has railroad shops, cigar factories, and flouring mills. **Jefferson City**, the capital, is beautifully located on the Missouri.

4. Iowa consists mainly in rolling prairies which are exceedingly fertile. It produces more corn, oats, and hogs than any other State, and ranks high also in other kinds of grain and live stock. Agriculture, slaughtering, and meat



A nailing machine. The cases of tobacco are put up in blocks of ten.

farming tools. **Waterloo** manufactures dairy machinery and gasoline engines. **Muscataine** manufactures flour and building material. **Fort Dodge**, building materials and woodenware. **Keokuk** has breweries, stove foundries, and flour and lumber mills. **Marshalltown** is a shipping and distributing center.

6. Kansas and Nebraska.—The eastern portions of these States consist of rolling prairie. The western parts, having a drier climate, are valuable grazing lands. Immense numbers of cattle, horses, and sheep are raised.

Both these States are scantily supplied with timber. Millions of trees have therefore been planted. They grow with great rapidity.

7. Kansas.—The eastern part of Kansas having a mild and moist climate, the soil is exceedingly fertile and enormous crops of corn, wheat, flax, alfalfa, sorghum, and millet are cultivated. Large numbers of hogs are raised.

Deposits of zinc, lead, gypsum, salt, and coal abound, and all are largely worked. The coal beds underlie twenty counties in the eastern part of the State. Vast deposits of petroleum and natural gas have been discovered.

Cities.—**Kansas City**, lying across the State line from Kansas City, Mo., is the third largest meat-packing center in the country. It also manufactures flour and is a large market for agricultural machinery. **Topeka**, the capital, is one of the most beautiful and healthy cities in the United State. It is a railroad center and has important car shops, flouring mills, and packing houses.

Leavenworth, on the Missouri, is an important military post. It is in the coal-mining region and has important machine shops and foundries. **Wichita** lies on the borders of the agricultural and stock-raising belts. It is a leading shipping center for live stock. **Atchison** is a shipping point for flour, grain, and stock. **Fort Scott**, in the bituminous coal regions, manufactures ironware. **Pittsburg** and **Galena** are centers for mining and extracting lead and zinc. **Lawrence** is a manufacturing town.



Dipping cattle in petroleum in Nebraska. This cleanses them and improves their health.

8. Nebraska.—The eastern part of this State, where there is plenty of rain, produces enormous crops of corn, wheat, oats, and alfalfa. Hogs are raised in the corn belt. Dairying and fruit raising are important industries. The drier western parts of the State are well adapted to grazing.

The surface of Nebraska slopes eastward and is drained by the deep, muddy Missouri, whose most important tributaries in the State are the Niobrara, the Platte, and the Republican rivers. These streams have broad, sandy bottom-lands, and are fed by thousands of springs. The Republican and the Platte lose much of their water during the summer months.

The extreme western part of the State is occupied by the

mesa and butte region, and in the extreme northwest corner, by the **Bad Lands**.

In these regions the rocky land has been worn by running water into jagged and irregular forms, and is unfit for agriculture or grazing.

A *mesa*, or *table*, is a flat-topped hill; a *butte* is a small mesa standing alone.

The chief industries are slaughtering and meat packing, and the making of flour, cheese, butter, and condensed milk.

9. Cities.—**Omaha** is the largest city and chief trading center. It is a center for many railroads, and is therefore a shipping point



Reaping sowed corn for fodder in Nebraska.

for the products of the surrounding country and a distributing center for supplies. **South Omaha**, a few miles away, is the second largest meat-packing center in the United States. **Lincoln**, the capital city, is the chief educational city. It is the seat of the **State University** and three other colleges, and has the largest wholesale trade in the southeastern part of the State.

Review Topics.—Compare Missouri and Iowa. Population of Missouri. Surface. Coal beds. Mineral resources. Leading agricultural products. St. Louis. Its situation. Manufactures. Kansas City. St. Joseph. Jefferson City. Other important places. The surface of Iowa. Minerals. In what is Iowa a leading State? Manufactures. Coal. Des Moines. Dubuque. Sioux City. Other places of importance. Eastern Kansas and Nebraska. Western. The climate of Kansas. Soil. Leading productions. Value as a grazing country. Minerals. Topeka. Kansas City. Other important places. Eastern Nebraska. Western. The climate. Productions. The Missouri and tributaries. The chief manufactures. Omaha. Lincoln.

ROCKY MOUNTAIN AND PACIFIC STATES AND TERRITORIES.

This section comprises three divisions: the **Rocky Mountain** region on the east; the **Plateau** region in the center; and the **Coast** region.

STATE OR TERRITORY.	Area in Sq. Miles.	Population, 1900.	CAPITALS.	Chief Cities and their Population.
New Mexico.....	122,580	195,310	Santa Fé.....	Albuquerque.. 6,238
Colorado.....	103,925	539,700	Denver.....	Denver.....133,859
Wyoming.....	97,890	92,531	Cheyenne....	Cheyenne..... 14,087
Montana.....	146,080	243,329	Helena.....	Butte..... 30,470
Nevada.....	110,700	42,335	Carson City...	Reno..... 4,500
Arizona.....	113,020	122,931	Phoenix.....	Tucson..... 7,531
Utah.....	84,970	276,749	Salt Lake City.	Salt Lake City. 53,531
Idaho.....	84,800	161,772	Boisé City....	Boisé City..... 5,957
California.....	158,360	1,485,053	Sacramento...	San Francisco. 342,782
Oregon.....	96,030	413,536	Salem.....	Portland..... 90,426
Washington....	69,180	518,103	Olympia.....	Seattle..... 80,671
Alaska.....	590,884	63,592	Juneau.....	Nome..... 12,486

XLI. ROCKY MOUNTAIN REGION.

1. This region embraces the States of **Colorado**, **Wyoming**, and **Montana**, and **New Mexico**, a territory.

2. **Surface.**—It is the most mountainous portion of the country. It extends on both sides of the Rocky Mountains, and includes the most elevated portions of the **Great Plains**, which stretch along the eastern base of the mountains.

Its general elevation is about 5,000 or 6,000 feet above the sea level. Scores of its peaks are from 12,000 to 14,000 feet high. These mountains form the **loftiest watershed** in the United States.

3. **Rivers.**—

Here are the sources of all the great rivers which flow eastwardly into the Mississippi, as well as the largest streams that flow into the Pacific.

The most important are the **Missouri**, the **Yellowstone**, the **Platte**, and the **Arkansas** on the east, and the **Columbia** and **Colorado** on the west.

On the peaks and in the gorges of the mountains are lodged immense quantities of snow. The melting of this snow in warm weather feeds the rivers on each slope, and prevents them from running dry in summer.

4. **Irrigation.**—Descending from a great elevation, the waters of the rivers are readily applied to the purposes of artificial irrigation.

This is necessary throughout the Rocky Mountain region, owing to the very scanty rainfall. Water is led or pumped from the upper courses of rivers into reservoirs, from which it is piped to channels cut through the fields of growing crops. The fields are flooded from three to five times during the growth of the crop.

5. **Climate.**—The climate is remarkably dry and bracing.

MAP STUDIES.—What States and Territory are crossed by the Rocky Mountains? By the Cascade Mountains? By the Sierra Nevada? Where do the Green, White, and other tributaries of the Colorado rise? What States are separated by the Columbia? Into what does this river flow? Through what range does it break?

New Mexico.—What rivers traverse New Mexico? In what direction do they flow? Where is the capital?

Colorado.—Where is Pike's Peak? North Park? Middle? South? San Luis? In what direction do the North and South Platte flow? The Arkansas? Rio Grande? Grand? Where is the capital?

Wyoming.—Where are the Wind River Mountains? The Sweet Water? Big Horn? Black Hills? Where is Fremont's Peak? The National Park? What rivers rise in this park? What lake in it? What and where is the capital?

Montana.—What range separates Montana from Idaho? What lake in the northwestern part? What two rivers traverse this State in an easterly direction? What river flows westerly into the Columbia? What Indian tribes in Montana? What and where is the capital?

Nevada.—What is the longest river in Nevada? Into what lake does it flow? Where are two desert regions? Where is the capital? Virginia City?

6. **Resources.**—This region possesses vast mineral wealth, and mining is the most important occupation of the people. The Great Plains are the chief grazing district of the continent.

In summer large areas of them are covered with grass, which, uncut, becomes self-made hay.

7. **New Mexico** was formerly a part of Mexico and was settled by emigrants from that country. Many of the people still speak Spanish. There are many Indian villages in the State consisting of pueblos; that is, large buildings several stories high made of sun-dried bricks. The stories are arranged in terraces and the rooms are entered by ladders from the roof or from the ground.

The leading industries of the State are **stock raising** and **mining**. Copper and lead are smelted, coal is abundant, and there are numerous gold and silver mines.

New Mexico lies in a region of scanty rainfall, but wherever water is obtainable for irrigation the soil is found to be fertile and very productive of corn, wheat, and fruits. Cattle raising, wool growing, and the culture of grapes and fruits are important industries. Agriculture is growing in importance.

8. **Cities.**—

Santa Fé, the capital, is 6,840 feet above the sea level. It was founded by the Spaniards in 1582 on the site of a pueblo village, and is the second oldest city in the

United States. The houses are chiefly of adobe (sun-dried brick). **Albuquerque**, the largest city, is in a fruit-growing region. It is at a junction of railroads and the most important trading center. It is the seat of the **University of New Mexico**.

Las Vegas has become noted as a health resort on account of

Arizona.—What river on the west? What river in the south? What and where is the capital? Where is the Grand Cañon? Tucson?

Utah.—What two mountain ranges in Utah? What great lake? What lake south of Great Salt? Where is the Green River? Salt Lake City? Ogden?

Idaho.—What mountains form the northeast boundary? The western? What river crosses the southern part of the State? Where is the Salmon river? The capital? Montpelier? Weiser?

California.—What range of mountains near the coast? What range east? Where is Mount Shasta? Mt. Whitney? What river forms part of the eastern boundary? What two drain the valley of California? Direction? Where is the capital? San Francisco? Los Angeles? San Diego? Santa Barbara? Stockton? Oakland?

Oregon.—What mountain range crosses the State? What river forms part of the northern boundary? The eastern? Which breaks through the Cascade range? Which flow north into the Columbia? Where is Mt. Hood? The capital? Portland? Oregon City? Astoria?

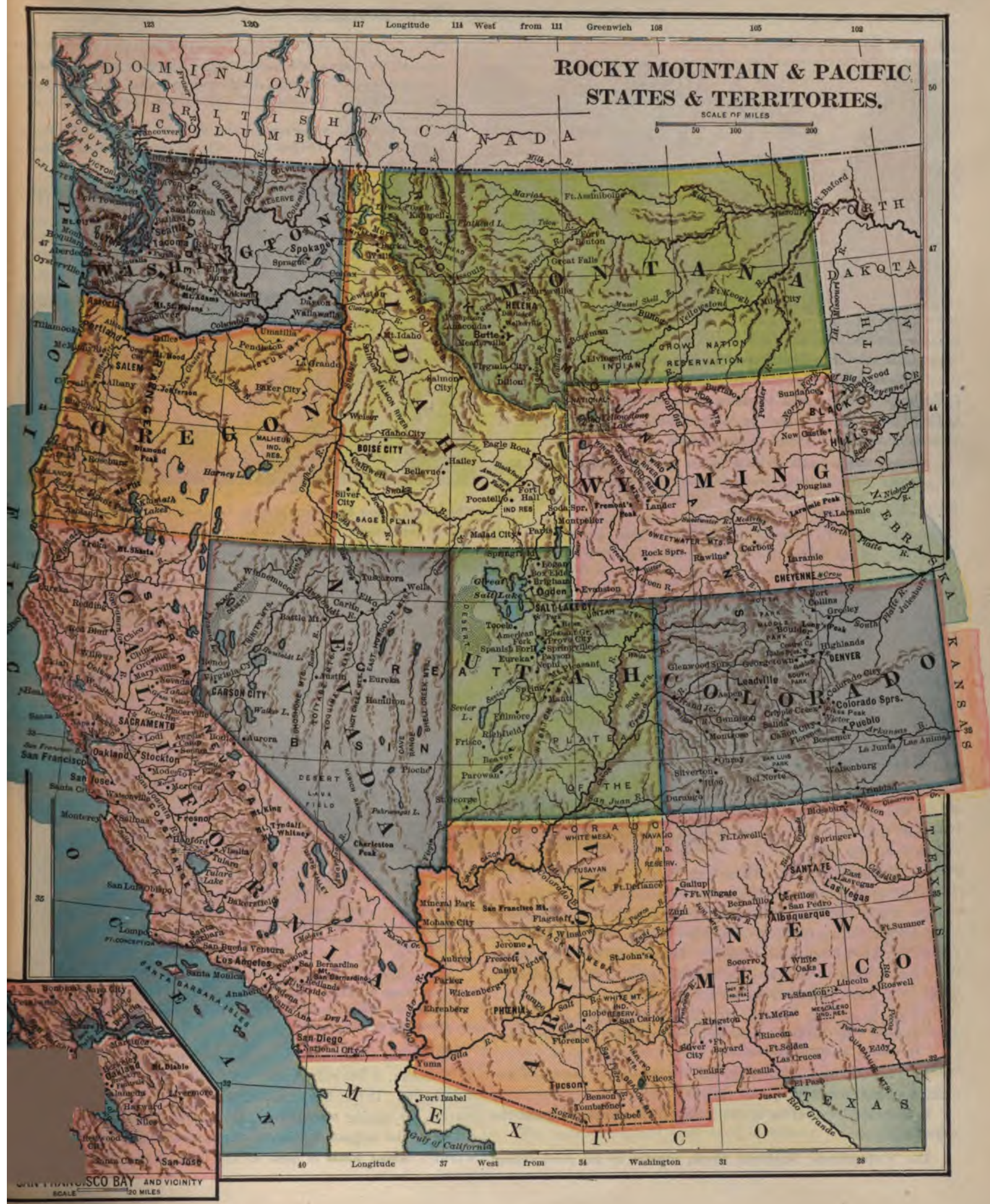
Washington.—By what mountains is Washington crossed? Where is Mt. St. Helens? Mt. Adams? Mt. Baker? Rainier? Puget Sound? Strait of Juan de Fuca? What river drains and partly bounds Washington? Where is the capital? Seattle? Tacoma? Spokane?



View of the Rocky Mountains and Pike's Peak, from the entrance to the Garden of the Gods, near Colorado Springs.



Mount Sopris, Colorado, and the valley of Roaring Fork.—A ranch may be seen on the right of the picture.





The Portals; canyon of the Grand river, Colo. This river has cut its way for thousands of feet through the sand stone rock. Notice how the cliffs are worn away by the action of the weather.

the Indian tribes which were found in the United States.

9. Colorado.—Colorado contains the highest peaks in the Rocky Mountains, and immense elevated valleys called parks. These parks are enclosed by lofty mountains. The largest exceeds in size the State of Massachusetts.

Among the mountains of this State are the head-springs of four large rivers; namely, the Colorado, flowing west into the Pacific; the South Platte, flowing in the opposite direction to join the Missouri; the Rio Grande, and the Arkansas.

Colorado is rich in gold, silver, copper, coal, and iron. It is first among the States in the production of gold and silver, and



A view of Cripple Creek, in the heart of the Rockies in Colorado.

second in lead. It was formerly considered too arid for agriculture, but by means of irrigation and improved methods of cultivation, Colorado now produces from her farms greater values than from her mines.

10. Cities.—**Denver**, the capital, is the largest city in the Rocky Mountain region, and a center for railroads and mining and cattle-ranch supplies. **Pueblo** is an important city, with smelting-works, rolling-mills, and machine shops. **Colorado Springs** is widely known as a health resort. **Leadville**, 11,000 feet above the sea, is famous for its silver mining, gold, copper, lead, zinc, and iron, and **Cripple Creek** for its gold mines.

At **Manitou**, near Colorado Springs, are four remarkable mineral springs. At **Golden** is located the State School of Mines, and at **Boulder**, the State University.

11. Wyoming.—Wyoming, like Colorado, is a region of elevated plains, mountains, and valleys.

It contains the sources of the Missouri, the Columbia, and the Green rivers.

The **Yellowstone National Park**, situated in the northwestern

its hot springs. It is in a wool-growing district. **Zuni** is an Indian village on a reservation; near it are some remarkable ruins of pueblos which were once inhabited by people of a much higher civilization than that of any of

corner of Wyoming, is a tract of land 55 by 65 miles, set apart by Congress as a national park, or pleasure ground. It is remarkable for its lakes and waterfalls, its deep cañons, boiling springs, and geysers.

The **Old Faithful** geyser spouts every fifty-five minutes and sends up a stream of water 150 feet high. The cañon of the **Yellowstone** is a gorge from 1,000 to 1,200 feet deep.

Rich coal-beds are found in many parts of the State, and valuable deposits of gold, silver, copper, and iron.

The soil in the river valleys, wherever irrigation is employed, produces abundant crops of grain. The United States Government is building enormous irrigation works on its public lands,



Silver bars, called bullion, at the smelter in Leadville.

which will, upon their completion, be open to the public to settle on and purchase. Grazing is an important industry.

Wyoming ranks second in the amount of wool produced yearly.

12. Cities.—**Laramie** is the seat of the State University. **Rock Springs** and **Sheridan** are the headquarters of the coal mining interests. **Cody** has many large irrigation enterprises. **Rawlins** and **Casper** are wool centers.

Cheyenne (*shē-en'*), the capital, is a great cattle market.

13. Montana.—Montana is first among the States in the production of copper. It abounds also in mines of gold, silver, and lead. The river valleys have a fertile soil and rich pasturage. Stock-raising and wool-growing are important industries.



A field of boulders in northern Colorado. These have been brought down from the mountains by glaciers, one of which may be seen on the side of Long's Peak, in the distance.

In the center of the State are the **Great Falls** of the Missouri river, among the most picturesque in America. The head of navigation of the Missouri is at **Fort Benton**, about 2,500 miles above **St. Louis**, but navigation is tedious and difficult. The voyage up takes sixty days; down, ten or twelve.

14. Cities.—**Helena**, the capital and chief commercial center of Montana, is beautifully located on the foothills of the Rocky Mountains. It has large gold mining interests, and is the chief market for mining machinery. **Butte** and **Anaconda** are in the center of the largest copper mining and smelting works in the world. **Great Falls** is built at the falls of the Missouri river

and is an important center in the manufacture of mining machinery. **Missoula** is in a mining and farming region, and is the seat of the State University. **Billings** is a shipping point for live stock and **Bozeman** is in a mining and lumbering region.

Review Topics.—States and Territory of the Rocky Mountain region. Surface. Rivers. Why is irrigation necessary on the Great Plains? Describe the method. The climate. The chief resources. By whom was New Mexico settled? Chief products. Santa Fé. Las Vegas. Zúñi. The mountain peaks of Colorado. The great Parks. Rivers. Mineral productions. Agriculture. Denver. Leadville. Colorado Springs. What State does Wyoming resemble in surface? Yellowstone Park. Describe the mineral resources of Wyoming. The river valleys. The capital. In what does Montana abound? What portions of the State are fertile? The Missouri river is how far navigable? What are the chief trade-centers?

XLII. THE PLATEAU REGION.

1. The Plateau Region lies between the Rocky Mountains and the Sierra Nevada and Cascade ranges. It is several thousand feet above the sea, and varies in breadth from 300 to 700 miles.

It contains the States of Nevada, Idaho, and Utah, and Arizona, now a territory.

2. **Surface.**—The surface is very rugged. Mountain ranges traverse it in various directions. The Wasatch, one of the loftiest of these ranges, lies between the Great Basin and the Plateau of the Colorado. The Great Basin is 3,000 feet lower than the Plateau of the Colorado. It embraces the western part of Utah and nearly the whole of Nevada. Much of this region is barren, occupied by sandy and salty lands and salt lakes.

Among its remarkable features are the gorges called **cañons**, often several thousand feet in depth. They have been cut by the rivers through layers of rock.



The simplest method of irrigating a field is to let the water in through a ditch and to flood each part of the field in succession by building a little dam across the ditch, as shown in the picture.

region, artificial irrigation is resorted to on an immense scale.

The prevailing winds come from the Pacific laden with moisture; but in crossing the cold peaks of the Sierra Nevada they are chilled, and deposit their moisture as rain or snow. When, therefore, they reach the Plateau region they are dry winds.



Grand Cañon of the Colorado, in Arizona. Here the swift current has cut its way through the sandstone rock to a depth of about 6,000 feet. Notice the layers or strata of rock, and the crumbled rock or talus which has gathered at the foot of the cliffs and is washed away at high water. [Copyright, Detroit Photo. Co.]

exhausted, and the State has greatly declined in population.

The **Muddy Salt Mine** is the largest deposit of rock-salt known in the country. It is two square miles in area.

Some of the valleys are very fertile, and **stock-raising** is one of the chief occupations. Most of the State, however, is unsuitable for agriculture, except where water can be obtained.



Irrigation. Sometimes a reservoir to hold water for irrigation is made by building a dam across a stream. Sometimes the water has to be pumped into a reservoir or into a flume, as shown in this view at Elgin, Utah. This waterwheel runs the pump for irrigation.

Irrigated field at Greenville farm, Utah. Notice the pipe or flume through which the water is brought to the field, and the number of smaller pipes which distribute it over the field.

The most noted is the **Grand Cañon of the Colorado**. It is more than 300 miles long, and from 3,000 to 6,000 feet deep.

3. The climate is marked by great dryness. As in the Rocky Mountain

neighborhood make it a resort for invalids. **Virginia City** has the richest gold and silver mines in the State. The famous **Comstock Mine** there has yielded silver to the value of \$475,000,000.

8. **Arizona.**—The northeastern part of Arizona is a high plateau ranging from 5,000 to 8,000 feet above sea level, with ranges of mountains formed by volcanic action. This part of the State has rainfall just sufficient for cattle and sheep raising, which is an important and lucrative industry.

The southwestern half of the State is much lower and has even less rain than the more elevated part, but by **irrigation** it is becoming one of the best fruit-growing regions of the country.

The most important occupation is **mining**. The State stands

Owing to the almost entire absence of moisture, changes in temperature are very rapid. It is often 70° or 80° at noon, and below freezing-point at sunrise.

4. **Minerals.**—The hills and mountains that rise up from this plateau are stored with rich mineral deposits. Silver, gold, copper, lead, and other metals are found, with beds of salt and soda of unknown extent. The chief industry, therefore, is mining.

5. **Vegetation.**—Large areas of this region are barren wastes covered with gray sage-brush and cactus. The river valleys, however, if irrigated, are extremely fertile.

6. **Nevada.**—Nevada occupies a large part of the Great Basin. Its mines constituted its chief source of wealth. Until recently, they produced a large part of all the silver annually mined in the United States. Many of them, however, are now

7. **Cities.**—**Reno**, the chief city, is a mining center and manufactures machinery. **Carson City**, the capital of the State, is near gold and silver mines, and has mills for the extraction of these metals. The hot springs in this



Provo Valley, Utah.

third in the production of copper, and has beside extensive gold, silver, and lead mines. The smelting and refining of ores is important.

Cities.—**Tucson**, the largest city, is the seat of the State University. It is an important mining center and has smelting works for the reduction of gold, silver, and copper ores. **Phoenix**, the capital, is in the center of a well-irrigated farming region. Both cities have a large trade in mining outfits and machinery.

9. Utah.—Utah is traversed from north to south in its eastern half by the Wahsatch Mountains. At their western base lies the Great Salt Lake, 75 miles long. The western part of the State lies in the Great Basin. The rainfall throughout the State is very slight, but by irrigation the agricultural resources have been wonderfully developed. Beet raising and sugar manufacture are profitable industries. Sheep raising is very important, and much wool is exported.

Mines of gold, silver, lead, and copper are extensively worked.

Utah is inhabited largely by the Mormons or Latter-day Saints.

Cities.—**Salt Lake City** is the capital and the largest and most important city in the State. It has wide, beautiful streets and is the center of the Mormon religion. It is the meeting point of several trunk lines of railway and commands the trade of an extensive and fertile region. **Ogden** is an educational center and has factories for the production of canned goods, beet-sugar, and textiles.

Logan is located in a fertile valley. The State Agricultural College is here. **Provo**, also in an agricultural region, has woolen and knitting mills.

10. Idaho.—Idaho is in large part mountainous. It stands first in the United States in the production of lead, and large amounts of gold, silver, and copper are mined. Many other minerals are found, but are not extensively mined.

The State is well covered with valuable pine forests from which much lumber is cut. Sheep and cattle raising are very important industries. The soil is rich, but the rainfall is slight. Many private irrigating canals have been constructed, and over two million acres have been reclaimed and made crop producing. At present the greatest agricultural interest of the State is sugar-

beet growing, and the manufacture of beet sugar is assuming large proportions.

Cities.—**Boise**, the capital, manufactures iron and lumber, is a



Copyright, Detroit Photo Co.

Pacific Ocean and the rocky coast at San Francisco. The city is on a peninsula about six miles wide enclosed by the Pacific Ocean, San Francisco Bay and the strait called the Golden Gate, which connects them. The wharves are on the bay, which furnishes the best harbor on the Pacific Coast.

shipping point for wool, hides, and fruit. A government Assay Office is located here. **Lewiston** manufactures mining machinery.

Review Topics.—Describe the Plateau Region. The cañons. Climate.

Industries. The vegetation. Nevada. Its silver. Describe the Muddy Salt Mine. Why is the State not adapted to agriculture? Describe Virginia City. The capital. Describe surface of Arizona. Its rainfall. Industries. Centers of trade. What mountains traverse Utah? Locate Great Salt Lake. The mineral productions. Agricultural resources. The inhabitants. Capital. Ogden. Describe Idaho. Its resources. Capital. Other leading towns and their industries.



A raft of logs in the Columbia river, Oregon.
[By courtesy of the Four Track News.]

XLIII. COAST REGION.

1. This region embraces **California, Oregon, Washington, and Alaska**. Excluding Alaska, it is traversed from north to south by the Sierra Nevada and Cascade ranges. The low Coast range stretches along the shore. Between these ranges lie great valleys. They form the most important parts of this region.

The principal rivers are the **Columbia**, which, in the lower portion of its course, forms the boundary between Oregon and Washington, and the **Sacramento** and **San Joaquin** (*san wah-keen'*), which traverse the **Valley of California**.

2. Climate.—The climate of this region is widely different from the climate of the Atlantic coast in the same latitude. This is caused by the prevailing winds. In both regions these are westerly. But on the Atlantic side they are from the land, and in winter are cold; on the Pacific side they come from the sea, and are warm and moist.

Oregon is in the same latitude as the **New England States**.

Washington is, **San Joaquin Valley, California**.



Raisins, prunes, and apricots are dried in the open air in California. This shows an orchard, and the process of drying apricots in the

for the most part, much farther north. In New England the farmers have to house and feed their cattle all the winter, while in Oregon and Washington the pastures are green all the year round. The west winds and the **Japan Current** give these States a mild, moist climate.

Summer and winter in California are called respectively the **dry season** and the **rainy season**. In summer, for weeks together, not a drop of rain falls. In Oregon and Washington, however, the **summer rains** are somewhat more copious, and the country is well watered.

3. Resources.—The deposits of gold and quicksilver in this region are among the richest in the world. The soil of the valleys is marvellously productive.

The fruits, flowers, and vegetables are famous for their beauty and size. Sixteen hundred pounds of hops to the acre are not unusual returns. Immense herds of cattle and flocks of sheep find rich pasturage.

The **slopes** of the mountains are covered with forests of pine, fir, and cedar.

4. California is the oldest of the Pacific States.

The Spanish Franciscan Friars established **missions** or settlements in it at an early day. But it was thinly settled until, in 1848, it was ceded by Mexico to the United States. Soon after this gold was discovered, and people flocked to the mines from all parts of the world.

California is the **second State** in the production of gold, and is one of the chief sources of the world's supply of quicksilver.

Agriculture is by far the most important industry of the State. The irrigated lands are larger in aggregate area than Connecticut. Wheat, barley, hops, and the sugar-beet are extensively cultivated. Much wheat and barley of excellent quality are shipped to Europe by the Cape Horn route.

Oranges, lemons, olives, almonds, and grapes flourish luxuriantly in southern California.

The production of raisins has become great enough to supply the whole United States.

California is the first wine-producing State

in the Union. It is also a fine farming and grazing country.

5. California is noted for its remarkable scenery.

The **Yosemite** (*yo-sem'i-te*) Valley is a gorge of singular grandeur. Its rocky walls are from three to five thousand feet in height. The **Merced River** flows through it, and makes a series of wonderful cascades, one of which, the Nevada Fall, is six hundred feet high.



The harbor of San Francisco, showing San Francisco Bay, over which most of the freight and passengers coming by rail to the city cross from Oakland on ferryboats.

Some of the largest and **loftiest trees** in the world are found on the slopes of the Sierra Nevada. They are gigantic evergreens. Many of them have each a diameter of 40 feet, and are more than 300 feet in height.



Much of the gold dug from mines is embedded in hard rock. This rock is broken up into small pieces which are crushed into powder in a "stamping mill." The stamps are immense pestles, weighing over 1,000 pounds, which are raised by machinery and are dropped upon the rock, crushing it into powder. Flowing water washes the powdered rock over copper plates covered with quicksilver, to which most of the gold adheres, while the sand is washed on to the boxes which you can see at the end of the plates. The quicksilver is evaporated, leaving the pure gold. Some gold is left in the sand and is taken out by a process called "concentration."

6. Cities.—San Francisco is the largest and most important seaport on the American shore of the Pacific. Steamers connect it with China, Japan, Australia, Alaska, and the Hawaiian and Philippine Islands.

By means of these steamship lines and the Pacific railroads a large and growing trade is carried on between these countries and the United States. Most of the **silk** and **tea** brought from China and Japan come by way of San Francisco. **Raw sugar** is brought from the Hawaiian Islands and refined. Other leading industries are meat-packing and the manufacture of clothing and flour.

Los Angeles is the second city in size. Four lines of railway meet there. It is the center of a rich oil and fruit region. Oil refining and fruit canning are the leading manufacturing industries. **Oakland**, on the east side of San Francisco Bay, is the terminus of railroads, whence freight and passengers go by ferry to San Francisco. **Sacramento**, the capital of the State, has a large wheat and flour trade.



Petroleum wells near Pasadena.

San José, in the beautiful Santa Clara Valley, has the largest fruit canning, packing, and drying establishments in the State;



Mt. Shasta, California, which was once an active volcano.
[Copyright, Detroit Photo Co.]

nearby are the **Stanford University**, and the famous **Lick Observatory**. **San Diego** has a good harbor, and exports wheat and fruit. **Stockton** is situated in a very fertile plain. It is an important center of trade, and has large manufactures. **Berkeley**, on the eastern side of San Francisco Bay, is the seat of the **University of California**. It has tanneries, oil, and chemical works. **Fresno** is located in the fruit-growing region. Its chief industries are the drying and canning of fruits, olives, and figs, and the manufacture of olive-oil, wine, and brandy. **Pasadena** is a noted winter resort. **Alameda** is engaged in shipbuilding and petroleum and borax refining.

7. Oregon.—The State is in the same latitude as New England, but the climate in the eastern part is not unlike that of Maryland, while west of the Cascade Mountains it is even milder than Maryland in winter, but not so oppressively warm in summer.

The valleys that lie between the Cascade and Coast ranges are very fertile and yield abundant crops of cereals and fruits without irrigation, and larger areas in the eastern part of the State are being brought under a high state of cultivation by irrigation.

Stock-raising and wool-growing are important industries.

The western slopes of the Cascade and Coast ranges are covered with vast forests, and the cutting of timber is a leading occupation.

The yield of gold and silver is very great. Coal and iron are abundant.

The streams abound with excellent fish.

Immense quantities of salmon are canned and exported.

Cities.—**Portland**, the largest city, is at the head of ocean navigation on the Willamette river and is an important railway terminus. It exports more lumber than any other port in the world; flour, salmon, dairy products, and wool are next in importance.

Salem, the capital of the State, has industries similar to those of Portland. **Astoria**, at the mouth of the Columbia river, is noted for the preserving of salmon.

8. Washington.—The part of the State east of the Cascade Range lies in the Columbia plateau. It is a fine agricultural region and raises much wheat and other grains, hops, and fruit.

The western part of the State contains extensive forests of pine, cedar, hemlock, and spruce. The manufacture



A field of alfalfa at Union, Ore. Alfalfa is a forage grass well adapted to a dry climate. With irrigation, five or six crops can be raised each year.

and export of lumber is the most important industry in the State.

P u g e t Sound, with its connections, furnishes navigable routes for a distance of nearly two



Shipping wheat.—Pendleton, Ore.

hundred miles into the interior. An abundance of coal is found in the vicinity, making Washington the largest coal-producing State on the Pacific coast. The waters of the sound and its tributary rivers swarm with salmon and other fish. The preserving and shipping of fish is the third largest industry.

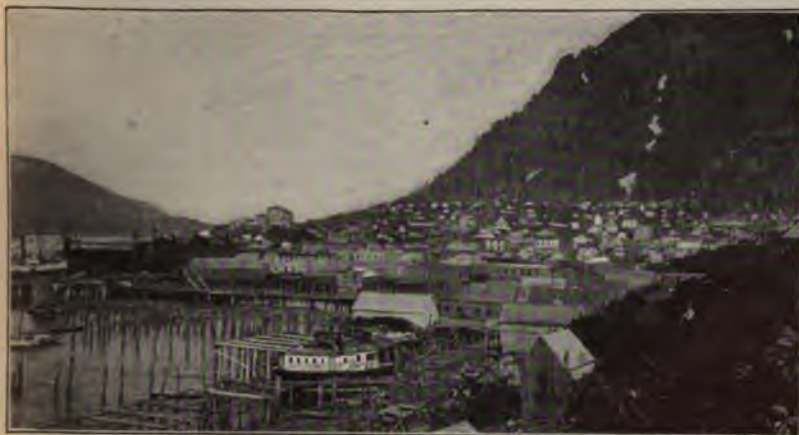
Cities.—**Seattle** is the largest city and chief seaport. It is the terminus of three great trans-continental railway lines and has steamship connections with all parts of the world. Its great industries are the handling of lumber and coal, fisheries, and commerce. **Tacoma**, the second city in size, is the terminus of the Northern Pacific Railroad. It has a deep-water harbor and ships, wheat, lumber, and coal. Tacoma has the largest lumber mill in the world, and is the seat of the State University. **Spokane** has fine water power and extensive manufactures of lumber and iron. **Walla Walla** is situated in the center of the wheat and fruit-growing region.

Olympia, near the southern end of Puget Sound, is the capital of the State. It has fishing and lumber industries. **Bellingham**, a flourishing town in the northwestern part of the State, has lumber and iron industries and fish canneries. **Everett** manufactures lumber, iron, and furniture.



Harbor of Seattle.—Steamer leaving for Alaska.

9. Alaska.—The territory of Alaska was purchased from Russia in 1867. Its shores are bathed by the Japan Current, mighty current in the Pacific resembling the Gulf Stream in the Atlantic. The westerly winds that blow over this current temper the climate of Alaska and the Aleutian Islands, as the winds from the Gulf Stream temper that of Norway and Iceland.



Juneau, the capital of Alaska.

Mt. St. Elias, 18,010 feet high, with its everlasting cap of snow, stands as a landmark between Alaska and the British Possessions.

The **Yukon** is the largest river in North America. It is 80 miles wide at its mouth, and 10 miles wide 800 miles above its mouth.

The **prevailing winds** are westerly. Coming from the sea, they give a moist climate to the coast, in the neighborhood of which heavy forests of spruce, fir, cedar, hemlock, alder, and pine are found.

Grass grows luxuriantly in places, but the **summers** are too short and cool for general agriculture.

Coal and other **minerals** are abundant. The **gold** deposits are among the richest in the world.

The inhabitants are mainly **Eskimos** and so-called Indians, who,

however, differ greatly from the Indians in other parts of the United States. They live by fishing, and hunt seals, sea-otters, martens, foxes, and bears. The fur-seal fishery is the most valuable in the world. The



Cape Nome. Notice the camp in the foreground where gold is being mined on the shore.

seals are taken on and near the Pribilof Islands. The cod, salmon, and herring fisheries also are of immense value. At certain seasons the salmon fairly choke up the fresh-water streams on their way to the spawning grounds.

The capital is **Juneau**. Nome and Juneau are mining centers.

The **Aleutian Islands** are volcanic and treeless; the natives live in *barabaras*, structures half above and half below the ground. They make the frames of their walrus-skin canoes of wood drifted from Asia and cast upon their shores by the Japan Current.



Placer mining in Alaska. The sand and gravel is washed down through a long trough which has slats across the bottom. The water carries the sand and gravel away, and the gold, being very heavy, is caught by the slats and picked out by hand.

New England and Oregon. The seasons in California? Mineral deposits? Agricultural resources? The forests? Settlement of California? Its gold product? Most important industry? Leading agricultural products? Fruits? Wine and wool product? Describe the Yosemite Valley. The great trees.

Describe San Francisco. Other important cities. What of the climate of Oregon? Products? Most fertile part? The capital? Washington. Alaska. The Aleutian Islands.

XLIIIa. THE ISLAND REGIONS.

1. The Island Regions belonging to the United States are **Porto Rico**, with adjacent islets; the **Hawaiian Islands**; the **Philippines**; **Guam**, one of the Ladrone; and **Tutuila** and **Manua**, islands of the Samoan group.

2. **Situation and Climate.**—Porto Rico is in the Atlantic Ocean; the others are in the Pacific. All are within the tropics, and within the region of the northeast trade wind. Their climate and productions, therefore, are naturally much alike.



Drying coffee in Porto Rico. The trays slide under the platform to protect the coffee from rain and dew.

3. **Porto Rico** is the smallest of the four "Greater Antilles."

4. **Rainfall.**—Mountains cross the island from east to west, and greatly influence the rains. Driven up the mountain slopes, the warm northeast trade wind, freighted with moisture, rises into cool atmospheric regions. A copious rainfall is the result. The **northern part** of the island is watered by more than a thousand streams, yet sometimes the **southern part**, screened by the mountains, suffers from drought.

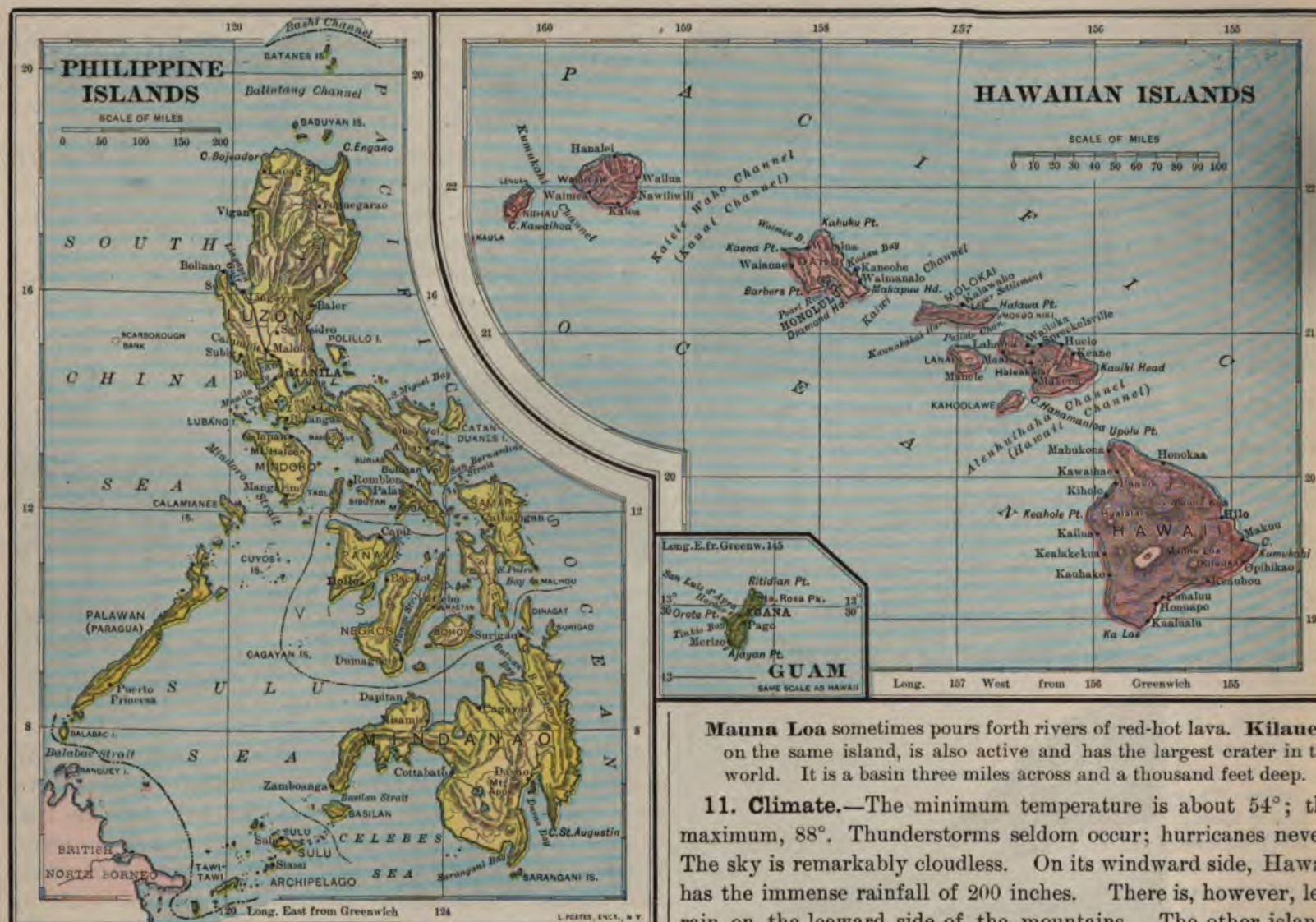
5. **Products.**—The island is a conservatory without glass. Tree ferns and cocoanut palms wave in the breeze; orange bloom scents the air; sugar-cane flourishes in the lowlands; the coffee-tree decks the hillsides, to the height of a thousand feet, with snow-white blossoms or scarlet berries. Banana plantations yield millions of golden clusters. Thousands of acres are planted with mountain rice that forms the chief food of the laborer.

6. **Animals.**—Of the wild animals of Porto Rico none are beasts of prey. No poisonous snakes are found.

7. The **exports** are coffee, sugar, honey, tobacco, cocoanuts, and pineapples. The **imports** from the United States are chiefly



A street in Ponce, Porto Rico. The trees and shrubbery stand in the patio, or court, of a private residence.



rice, cotton goods, preserved meats, flour, and iron and steel goods.

8. The **Population** consists, in nearly equal proportions, of persons of Spanish origin and of the descendants of negro slaves. It numbers about 950,000. The language is Spanish. A system of schools, elementary, high, normal, and agricultural, has been established. The people are mostly Roman Catholics.

Cities.—San Juan, strongly fortified (pop. 32,048), and Ponce (pop. 27,952) are the largest cities.



Mauna Kea, a volcano on Hawaii, and the city and seaport of Hilo.

9. **Hawaii** comprises eight large islands and a number of mere rocky islets.

10. **Origin.**—The entire group has been thrown up by volcanic action; and on Hawaii, the largest of the islands, the volcanoes are still active.

Mauna Loa sometimes pours forth rivers of red-hot lava. Kilauea, on the same island, is also active and has the largest crater in the world. It is a basin three miles across and a thousand feet deep.

11. **Climate.**—The minimum temperature is about 54°; the maximum, 88°. Thunderstorms seldom occur; hurricanes never. The sky is remarkably cloudless. On its windward side, Hawaii has the immense rainfall of 200 inches. There is, however, less rain on the leeward side of the mountains. The other islands have about 50 or 60.

12. **Products.**—The sugar cane, the pineapple, banana and coffee tree flourish.

Peculiar to these islands are the **candlenut** and the **taro**. The kernels of the candlenut are so oily that they are used like wax for candles. The taro supplies the natives with their principal food. It has a large starchy root, which is as important in Hawaii as the potato with us. These islands are capable of producing great variety of grains, vegetables, and fruits; but little attention is given to the cultivation of any plant except the sugar cane. Even rice, although it flourishes on the lowlands, is imported mainly from Japan. The **sugar crop** is large and is exported mainly to the United States, with which country trade is chiefly carried on. There are no





City and port of Honolulu.

other exports of importance. The leading imports are flour and grain, metal goods, cloth, oils, provisions, and various manufactures.

3. Animals.—The Hawaiian Islands are said to be free from snakes and frogs and toads. The only reptile reported is a small lizard.

4. Population.—The natives are brown, and belong to the Malay race. Like the other branches of this family, they are proud of liberty, brave, and intelligent. Taught by whites, they have become Christians.

There is a good system of public schools in the islands, and almost everybody can read and write. The people are abandoning their native tongue and using English.

Lepers.—Leprosy prevails to such an extent that on Molokai, one of the islands, there is a leper settlement set apart for the residence of the victims. There number 800.

The foreign population (Japanese, Chinese, Portuguese, Britons, and Americans) is about twice as large as the native.

Government.—The native government was formerly a monarchy, sometimes limited, sometimes absolute. Hawaii is now an organized territory of the United States.

Cities.—Honolulu, the capital and chief city, is located on a spacious harbor over a mile in length and admitting the largest vessels. It has a population of about 40,000 and a few small manufacturing industries. Hilo, about half the size of Honolulu, is on the island of Hawaii and is second in importance. It is on this island that Captain Cook, the discoverer of the group, was killed.

15. The Philippines are a group of the East India Islands. They are about 600 miles from the Asiatic continent. It is estimated that they number more than 1,000 in number.

16. Climate.—Their location in the torrid zone gives these islands a tropical climate. At Manila the average temperature for December and January, the coolest months, is 77°.

They are, moreover, within the region of the monsoons. From November to April the northeast trade wind blows, and gives to them, as it does to India, a comparatively cool and dry season. Beginning in April or May, the southwest monsoon blows for about five months. During the first three of these months it is intensely hot; in July, August, and September it is excessively wet. The rainfall at Manila is 75 inches. The hot, humid months of July, August, September, and October are also the months when typhoons occur. These are cyclonic storms like the West India hurricanes.

17. Origin.—The Philippines, like the Hawaiian Islands, are volcanic. Active volcanoes exist, and earthquakes occur.

18. Minerals and Soil.—Coal, iron, and copper are the most important minerals; but gold, silver, mercury, and sulphur have been found. The soil is remarkable for its fertility, and agriculture is the leading pursuit.

19. Products.—The forests contain ebony, teak, and rubber trees, and produce a great variety of gums, oils, and dyewoods. The bamboo and cocoanut palm furnish material for building, clothing, and food. The leading farm products are sugar cane, coffee, Manila hemp, tobacco, and rice.

Of these the hemp is the most important. It is a plant peculiar to the Philippines. It resembles the banana plant, and the fiber of the leaf is the best known material for cordage. It forms the chief export, coming largely to the United States. Raw sugar and tobacco are the next in importance. The imports from the United States are largely cloths, foods, liquors, petroleum, iron and steel goods, watches, and bicycles.

20. Animals.—Here, as in Madagascar, the animals known as lemurs are found. The boa constrictor is occasionally met with. The water-buffalo is the Philippine beast of all work.

21. The Manufacturing Industries are the preparation of Manila hemp, and the making of cigars. The latter industry is carried on mainly at Manila, where it employs 10,000 women.

22. Population.—The natives are of the Malay and Negro races. Among the foreign population the Spaniards are a very important element. The Chinese outnumber the Spaniards. They are the bankers and merchants.

Excepting the one Mohammedan tribe called Moros, most of the natives are Roman Catholics. Spanish is commonly spoken.

Cities.—Manila, on Luzon (pop. 220,000), is the capital. Iloilo, on Panay, and Cebu, on Cebu, are important ports.

23. Guam is an island of small area, but of value as a coaling and repairing station in the mid-Pacific. Docks and repair shops are to be erected by the government. The natives



Views on the Pasig river at Manila.

are Christianized Malays. Agaña (pop. 6,000) is the chief town.



are Christianized Malays. Agaña (pop. 6,000) is the chief town.

Review Topics.—The island regions. Porto Rico; surface, rainfall, products, animals, exports, and imports. Hawaiian Islands; people, schools, government. Honolulu. Hilo. The Philippines; location, number, climate, volcanoes, earthquakes, minerals, forest products, farm products, and animals. Exports and imports of Philippines. Manufacturing industries. Hemp. Manila. Guam.

TRANSPORTATION AND TRAVEL IN THE UNITED STATES.

Advantages of Transportation Facilities.—Nothing adds more to the comfort and prosperity of a people than the power to travel quickly from place to place and to transport goods cheaply and easily. To accomplish these things a vast system of public highways and railroads traverse the country like a fine network, reaching to every city, town, village, and even to every dwelling house in the entire country. Many canals have been built to connect the waterways of the country, and to afford a safe passage around waterfalls and rapids. Our rivers and lakes are navigated by steamboats, barges, canal boats, and by every sort of craft carrying passengers and freight. Steamships ply along our coasts, carrying goods from port to port, and ocean liners cross the seas in every direction, carrying our goods to all parts of the world.



AN EXPRESS TRAIN RUNNING SIXTY MILES AN HOUR.

Advantages of Railroads.—The railroad, on account of the speed, regularity, and low rates at which freight is carried, has become the most important means of inland transportation. The old stage-coaches made good speed if they accomplished six or seven miles an hour. The early emigrants to California occupied weeks and months, wearily crossing the country in covered wagons, and often suffering from scarcity of food and water. The trains on our Pacific railroads occupy less than a week in going from ocean to ocean; and in the palace cars one can be furnished with every luxury. But even when we do not travel we are benefited by railroads. All people are either producers or consumers, and railroads are of advantage to both.

How Producers are Benefited.—Productions of every description become more valuable when producers have convenient transportation. The grain growers of the Northwest, the cotton and tobacco planters of the South, the manufacturers of the Eastern States, and the mining population of the Rocky Mountain Region depend for their prosperity upon the facilities for transportation afforded them by railroads. We can understand how railroads benefit producers, if we consider the case of the farmer. It is of little use that a region is fertile, unless its products can be sent to market. Before we had railroads it sometimes happened that farmers a few hundred miles west of Chicago actually burned some of their corn as fuel because of the expense of getting it to market. Firewood was scarce, and the lack of transportation made fuel expensive; it also made the farmer's corn of little value. To burn a part of the crop was cheaper than to buy fuel. The early settlers of Kentucky were without railroads. The Alleghenies almost barred them from the markets of the Atlantic Slope. Consequently, they took their crops to New Orleans, rafting them down the Ohio and the Mississippi. At the end of their voyage they sold the crop and raft and made their way home as best they might. The journey down and back occupied more than six months. The crops of Kentucky now reach a market in a less number of days.

How Consumers are Benefited.—Not many years ago a severe famine prevailed in a certain section of India. Thousands of people perished from starvation. And yet there were other regions of India where there was abundance of food. But as this had to be transported chiefly in ox carts, only a little could be carried at once, and it took a long time to reach the famine-stricken region. If there had been railways connecting the district where the famine was with those places where food abounded, the starving people could very soon have been relieved; and therefore the British Government has urgently encouraged and aided the construction of such railways. At present there are in India about 27,000 miles of railway.

Railroad Traffic.—There were in the year 1830 only 23 miles of railroad in the United States. At present there are more than 200,000 miles, or more than one-third of the total mileage of the world. Those who live in towns through which important railroads pass can form some idea of the enormous amount of business done by them. Those going east carry cattle and grain; those from Missouri and Kentucky, hemp and tobacco; from Ohio and adjoining States they carry pork, lard, and flour. Some are coal trains, others are composed of refrigerator cars carrying fresh meat and fruit. Other cars support large iron tanks containing petroleum.

The railroads of the South transport a great deal of cotton to the ports of the Gulf or to those of the Atlantic seaboard. Many run northward freighted with oranges, strawberries and melons grown in the sunny South.

Trains going westward are not, as a rule, so heavily laden as those going eastward. They transport manufactures from the Eastern States, or imports from foreign countries.

Canals.—Before the days of railroads, the waterways of the country were the chief means of inland transportation. Good highways were few, and only to be found in the older and more settled parts of the country.

In the early part of the nineteenth century a great westward movement of population began. Thousands of people left their homes in the older colonies and crossed the Blue Ridge and Allegheny Mountains into the rich farming lands of the Ohio Valley. There were no bridges over the streams, the roads were bad, and it was very expensive to transport the tools, household goods, and supplies that were needed to build up homes in a new country.

The chief route followed by these western settlers was up the Hudson River to Albany; thence by the Mohawk and Oswego Rivers to Lake Ontario; across this lake and up the Niagara River and Lake Erie to a point opposite Chautauqua Lake; then overland and down the Allegheny River to Pittsburgh. Over part of this route goods had to be carried in wagons and on the backs of horses, and the cost was \$120 per ton from Albany to Buffalo.

In 1793 an attempt to build a canal between Chesapeake Bay and the Delaware River was made and given up. It was twenty-five years later that the people of New York, led by Governor Dewitt Clinton, began the Erie Canal, which was to connect the Great Lakes with the Atlantic by way of the Hudson River. In these days of steam-drills and dynamite it would be an easy task to dig a ditch four feet deep and forty feet wide; but with the picks and shovels of those days it was eight years before the waters of Lake Erie were brought to New York harbor. The canal reduced the cost of carrying a ton of goods from Albany to Buffalo to \$14. For over fifty years it was the route by which the agricultural products of the West were brought to the seaboard for export to foreign countries. This developed the West by making a market for its products. It also built up the foreign commerce of New York City and made it the metropolis of America.



A FLOATING GRAIN ELEVATOR.
Transferring grain from a canal boat to an ocean steamer
in New York City.

The success of the Erie Canal led to the building of many others, and before the end of the century the rivers and lakes of the country were connected by forty-three canals having a total length of 2,500 miles and costing \$200,000,000.

The Welland Canal connects Lakes Erie and Ontario and the Sault Ste. Marie, Lakes Huron and Erie. Why were these canals built? The Illinois and Michigan Ship and Drainage Canal connects Lake Michigan with the Mississippi River by way of the Chicago and Illinois Rivers. The Chicago River was deepened and made to flow into the Illinois instead of Lake Michigan, and to carry off the sewage of Chicago, which was polluting the water

of the lake. This canal connects the two greatest waterways of the country. Other leading canals are the Ohio Canal from Cleveland to Portsmouth; the Miami and Erie, from Cincinnati to Toledo; the Hudson and Champlain, from Troy to Whitehall; the Morris Canal, from Easton to Jersey City; the Delaware and Raritan, across New Jersey; and the Lehigh Coal and Navigation Company's Canal from Coalsport to Easton.



West 90° from 87° Greenwich

82°

77°

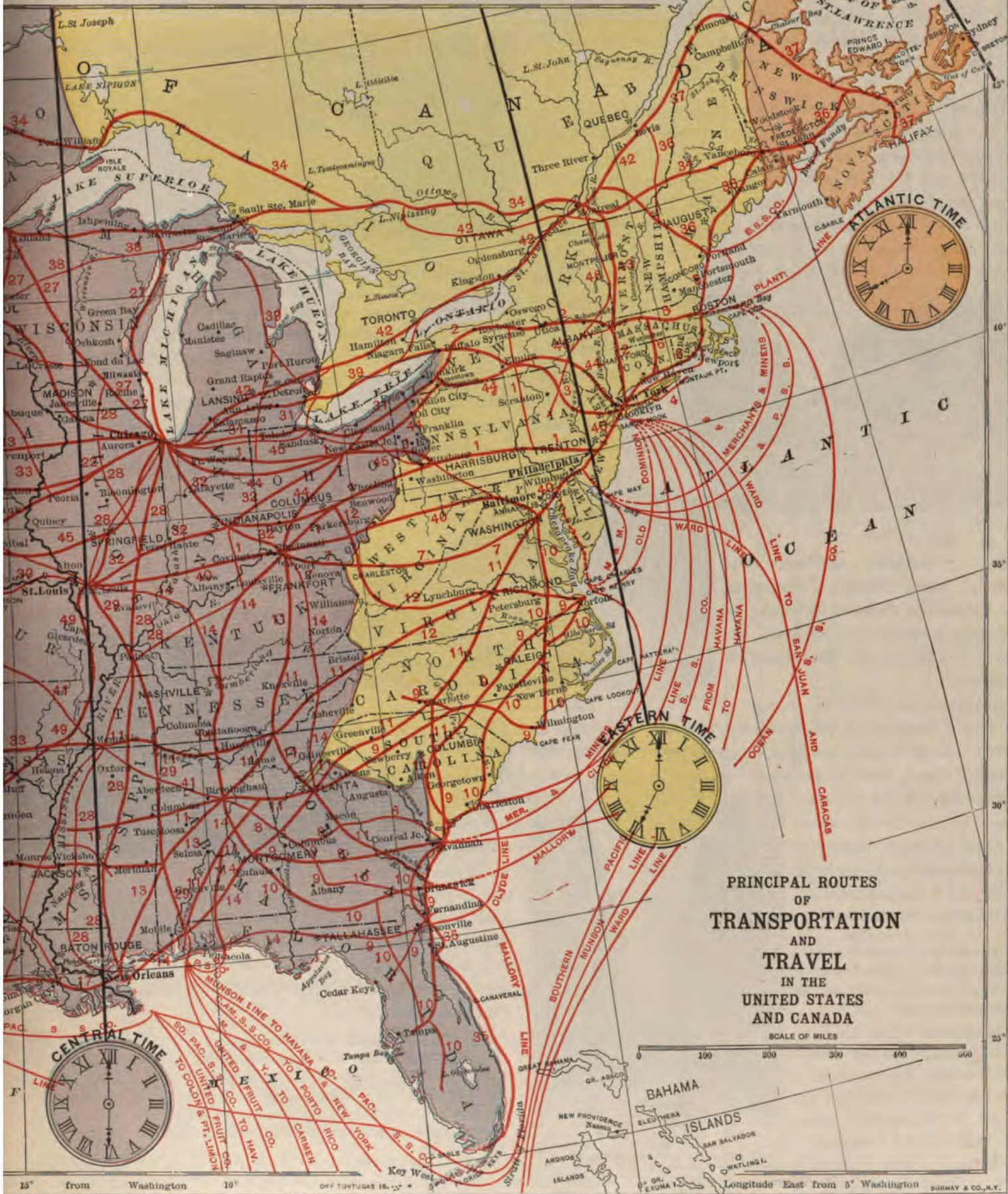
75°

72°

67°

64°

60°



PRINCIPAL ROUTES
OF
TRANSPORTATION
AND
TRAVEL
IN THE
UNITED STATES
AND CANADA

SCALE OF MILES

0 100 200 300 400 500 600

BAHAMA

ISLANDS

NEW PROVIDENCE

ANDROS

ISLANDS

GR. ABACO

LONGITUDE EAST FROM 5° WASHINGTON

BURMAN & CO., N.Y.

XLIV. DOMINION OF CANADA.

1. All of North America north of the United States, with the exception of Alaska and Greenland, is a part of the British Empire. Its area is about equal to that of the United States.

2. **Surface.**—The greater part of Canada lies in the northern slope of the Great Central Plain of the continent. West of this is the Rocky Mountain Plateau, and east are the basins of the Great Lakes and the St. Lawrence and of Hudson Bay. The watershed which divides these basins is the Height of Land, also called the Laurentian Highland. This is a worn-down mountain range, the oldest on the continent. This region contains many glacial lakes and short, rapid rivers. It abounds in



Scenes in Canada during the summer. On the Gadenecau river, in the northern part of Quebec, showing the hard rocks of the Laurentian Highland.

fish and game and is a favorite summer resort and hunting ground.

3. The Do-

minion of Canada comprises the



Hunters working their canoes up the rapids between two glacial lakes in Quebec. Notice the white birch trees on the bank.

4. **Government.**—The Dominion is governed by a Parliament and Governor-General, somewhat as the United States is governed by a Congress and President, but with this difference, that, whereas our President is elected by the people, the Governor of Canada is appointed by the British sovereign. Each province has as its local government a Lieutenant-Governor and a Legislature.

The Canadian Parliament consists of two branches. The members of the lower House are elected by the people; those of the upper are appointed by the Governor-General.

5. **Resources.**—The chief resources of Canada are her fisheries, her forests, her productive lands in the basin of the St. Lawrence and in the central plain, and her vast mineral treasures.

The Central Plain or Fertile

Belt embraces the millions of acres between Lakes Winnipeg and Athabasca and the Rocky Mountains. It is in the latitude of Labrador, but presents a strange contrast to that country. In Labrador we find treeless plains, white with snow for eight months in the year, and, except in sheltered spots, vegetation of the scantiest



Lumber piled to season near Ottawa. Lumbering is the chief industry along the Ottawa river, which is lined on both sides with forests. The largest mills are near Ottawa, which is famous as a lumber market.



On the Great Central Plain, near the village of Brandon, showing an orchard in the foreground, a wheat field, and an avenue of trees.

description. Upon the fertile belt the snow is light, and cattle find pasturage all winter. It is a good grazing country, and is also becoming one of the great wheat gardens of the world.

6. The **Industries** of the people are mainly agriculture, lumbering, shipbuilding, fishing, mining, and commerce.

The commerce of the country is extensive, and is almost entirely carried on with England and the United States. The exports of cattle, grain, cheese, and other food products are sent mostly to England; but the lumber, metals, fish, and coal are sold to the United States. The United States furnishes about two-thirds of the imports, consisting of iron and steel goods, machinery, cotton, farm tools, and petroleum. Canada produces more cheese for export than any other country in the world. It also ranks first in the value of its fisheries.



On the Muskoka Lakes. Return from a day's hunting.

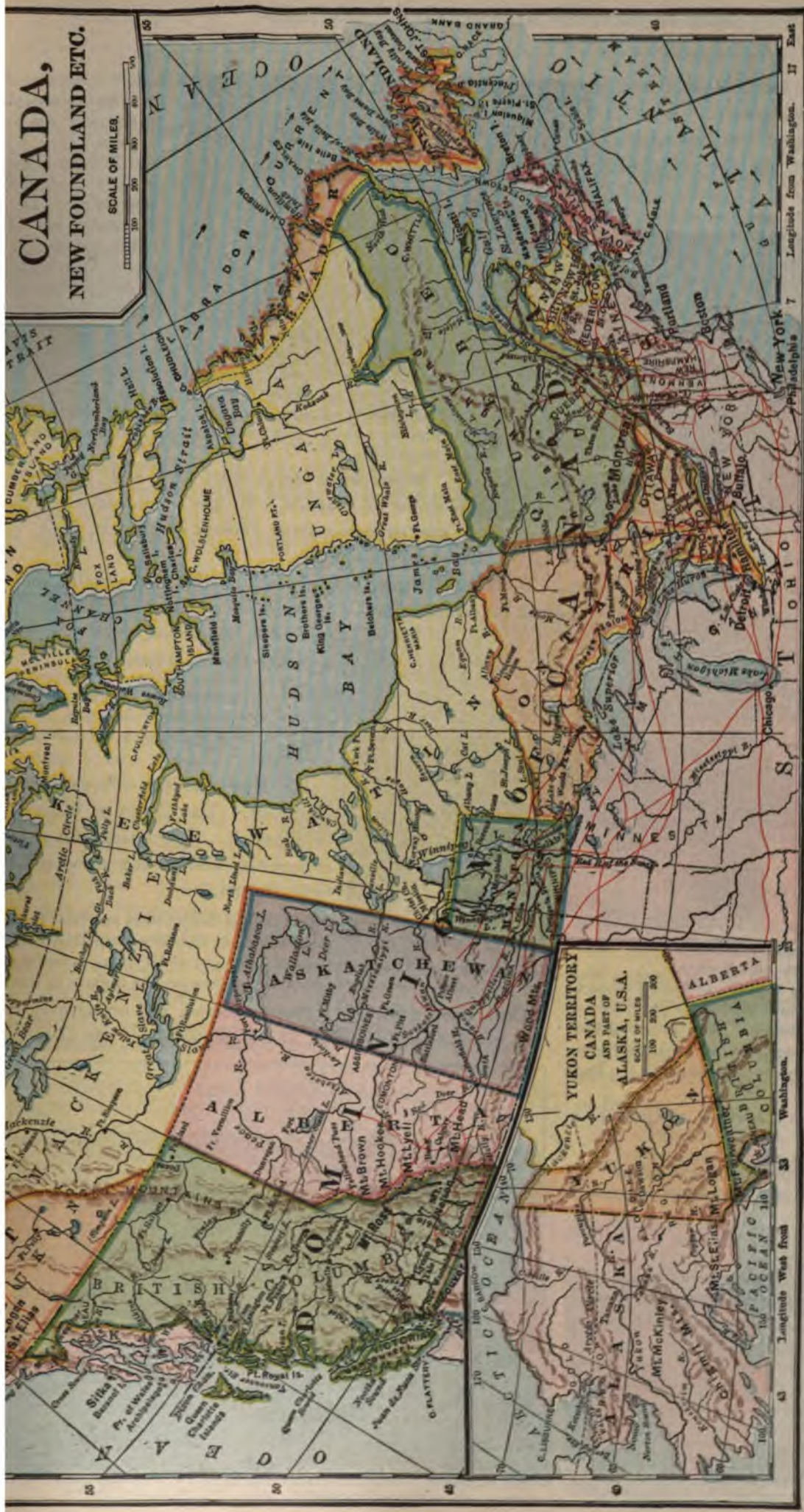
Trade Routes.

—The Great Lakes, with the Welland Canal and the St. Lawrence, constitute the most important

water route for Canadian commerce. The most important land route is formed by the Canadian Pacific Railway, which connects Halifax with Vancouver. At each of these ports steamship connections are made with European and Asiatic ports, making the shortest route between western Europe and the Pacific ports of Asia.

The **Grand Trunk Railway system** connects the cities along the Lakes and on the St. Lawrence with the Atlantic seaboard. The Red River of the North and the Saskatchewan traverse the "fertile belt," and, with Lake Winnipeg, Nelson river, and Hudson Bay, furnish, during the summer, **continuous water routes** to the ocean. During the winter, however, these water routes are closed by ice.

Recent Development.—The opening of the wheat lands and grazing regions of the West has attracted a vast number of immigrants, many of them going from the United States. Railroads are being extended in every direction, and a second grand trunk line is projected which shall traverse the heart of the country and penetrate the gold regions along the Yukon.



PROVINCES.	Area in Sq. Miles.	Population.
Dominion of Canada		
Ontario	3,745,574	5,371,315
Quebec	260,862	2,182,947
New Brunswick	351,873	1,648,898
Nova Scotia	27,985	331,120
Prince Edward Island	21,428	439,574
Manitoba	2,184	103,939
British Columbia	73,732	255,211
Saskatchewan	373,630	178,657
Alberta	251,100	89,741
Unorganized Territories	233,500	69,199
Newfoundland	1,866,881	52,709
Labrador (estimate)	40,200	217,037
	120,000	3,634

MAP STUDIES.—What provinces of Canada border on the Atlantic? What great body of water in the interior? What great river flows into the Atlantic? What mountain

range in the west? What ridge crosses the southeast portion? **Ontario.**—Natural boundaries on the south? Northwest? Lake on the west? River on the east? What city on the Ottawa? Where is Toronto? Kingston? Hamilton? What is the capital? **Quebec.**—What river valley is a part of Quebec? What gulf on the southeast? Where is the Saguenay River? What and where is the capital? What city at the mouth of the Ottawa? **New Brunswick.**—What peninsula to the east? What river on the west? Bay on the south? Gulf on the north? What is the capital? **Nova Scotia.**—What is the form of Nova Scotia? What island to the northeast? To the north? What separates Cape Breton Island from Nova Scotia? Where is Cape Sable? What is the capital?

Prince Edward Island.—In what gulf is Prince Edward Island? What is the capital? **Manitoba.**—What river crosses Manitoba? What lakes on the northern border? What is the capital? **British Columbia.**—On what ocean does Columbia border? What mountains form part of the eastern border? Name some of the highest peaks. What large island lies southwest of Columbia? What is the capital? **Saskatchewan.**—What lakes in the northern part? Name and locate the capital. **Alberta.**—The largest rivers. Four mountains. Name and locate the capital. **Newfoundland.**—What strait separates Newfoundland from Labrador? Where is Cape Race? Where is Trinity Bay? Heart's Content? What is the capital?

7. Ontario.—Ontario is bordered by four of the Great Lakes, and has a climate like that of Michigan.

Coal, iron, petroleum, copper, and gold are among its mineral resources. Wheat and lumber are the principal productions.

The forests abound with the sugar-maple, and the making of sugar from it is an important branch of industry.

Ontario is the most populous, productive, and prosperous of the provinces.

It was settled chiefly by Scotch, English, and Americans, and English is the language generally spoken by the inhabitants.



Logging scenes near Ottawa.

Cities.—**Toronto**, the capital and chief city of the province, is the largest lake port in Canada. It has extensive manufactures of iron and machinery and a large wholesale trade.

Ottawa, the capital of the Dominion, contains the Parliament House, which is a magnificent building. It is the first city of Canada in the manufacture of lumber.

8. Quebec.—The Province of Quebec has a colder climate than Ontario. The westerly winds do not reach it until they have lost the warmth received by them in crossing the Lakes.

The inhabitants are mainly descendants of the early French settlers. A majority of them profess the Roman Catholic religion, and use the French language. The records of the Dominion are kept in both English and French.

The southern part of Quebec is fine farming region, producing tobacco, hemp, flax, potatoes, and hay. The western part of the province has vast forests of pine, spruce, and hardwoods. Timber is floated down the rivers to Ottawa, where it is manufactured. Cheese, flour, maple-sugar, and useful articles for home consumption are the leading manufactures.

Cities.—**Quebec**, the capital of the Province of Quebec, is beautifully situated on a high bluff.

It is a walled town, and is so strongly fortified that it is called "The Gibraltar of America." Its lumber export is large and many ships are built there.



View of Quebec from the south shore of the St. Lawrence. Notice the old citadel.



In 1759 a celebrated battle, which gave Canada to England, was fought between the French and English before the walls of Quebec. **General Wolfe** and the **Marquis of Montcalm**, the two opposing generals, both fell, each bravely leading his forces. During the Revolution, **Montgomery**, an American general, was killed in an attempt

to capture the citadel of Quebec.

The scenery around Quebec is enchanting. In the vicinity are the picturesque falls and the natural steps of Montmorenci.

Montreal is the largest city and manufacturing center in Canada. It has an extensive commerce, and exports a large amount of lumber, flour, wheat, cattle, and dairy products.

9. New Brunswick abounds in lime, red granite, and iron, and its forests yield large supplies of ship-timber. The people are chiefly employed in the lumber business and the sea fisheries.

Cities.—**Fredericton** is the capital. **St. John** is the largest town and chief port. Both cities are engaged in the manufacture of lumber.

10. Nova Scotia.—Nova Scotia is a peninsula. The island of Cape Breton belongs to it. The climate of Nova Scotia is healthful, and greatly tempered by the Gulf Stream.

The shores of Nova Scotia and New Brunswick are washed by the tides of the Bay of Fundy.

These tides attain the enormous height of fifty, and sometimes even sixty, feet above low-water mark. They are the highest in the world.

Coal, iron, gold, and gypsum abound, and are largely mined. The forest wealth is great, and shipbuilding is one of the industries.



Dominion Square, Montreal. Above it is Mount Royal, from which the city takes its name.

The fisheries rank next to those of Newfoundland. The inland regions are devoted to agriculture.

Halifax, the capital, is a flourishing town. It has a large trade, chiefly in fish, with the United States and the West Indies. Its manufactures are important.

has a climate too severe to ripen even the hardiest grains; **potatoes** and a few other **vegetables** sometimes do well.

The coast is resorted to in the early spring and summer by fishermen, who catch large numbers of **seal** and **codfish**.

The population of northern Labrador consists mainly of **Eskimos**.

3. Danish America comprises Greenland and Iceland. (See



Upernavik, from a photograph taken at midnight during the Arctic summer.

map, p. 29.) **Iceland** has its own constitution and legislature.

Greenland.—Of Greenland little is known except the western and southern coasts; but Peary's explora-

tions on the north coast have proved this land to be an island.

The **interior** is one immense glacier. Snow falls every month in the year except July.

The **trees** are not more than six feet high. A few **grasses** grow, and buttercups and dandelions are found. Some **vegetables** are occasionally raised, but the hardiest cereals have failed.

The **population** consists of about 10,000 Eskimos and 200 to 300 Danes and other Europeans.

The skins of seals, reindeer, and other animals, with eiderdown, whale oil, whalebone, and fish, are exported.

Upernavik, in latitude 73°, is the most northerly abode of man.

Iceland is remarkable for its volcanoes and geysers.

Mount Hecla is the most noted volcano. The Great Geyser sends up a stream of water 100 feet high.

The **vegetation** of Iceland is not so dwarfed and scanty as that of Greenland, but there are no trees.



The "Kite," Capt. Peary's ship, in an ice-pack.

The warm waters of the **Gulf Stream** temper the climate. **Grain** will not ripen, but **vegetables** are raised, and enough **grass** grows to sustain cattle and sheep. **Wool, oil, and feathers** are exported. **Sea-fowl**, including the eider-duck, abound.

The **population** is about 69,000. The people are fond of literature, and have made valuable contributions to the history of America, which it appears was visited by an Icelanders 500 years before Columbus. **Reykjavik** (*rik'yah-vik*), the chief town, is a small hamlet, but the seat of a college.

4. The Arctic Regions of North America have been the scene of many explorations during the last four centuries. Among the explorers may be mentioned Hudson, Parry, Ross, Franklin, McClure, Hall, Nares, Nordenskiöld, Greely, Peary, and Amundsen.

It was formerly supposed that vessels could sail through Baffin's Bay, pass westward into Bering Strait, enter the Pacific, and then cross to China and the East Indies. This course was called the **North-**

west Passage. In 1854 **Capt. McClure** and his men crossed from Bering Strait to Baffin's Bay, but long before they reached the latter they were forced to abandon their vessel. The journey occupied more than three winters. In 1905 Capt. Amundsen made the passage in a ship from Baffin's Bay to Mackenzie Bay. The North-west Passage is useless for purposes of commerce.

The **climate** of the Arctic regions is intensely cold. It is frequently 50° below 0°. **Glaciers** fill the valleys of Greenland, and slide down into the water. Large masses, sometimes miles in length and hundreds of feet high, break off and float away. They are called **icebergs**. They are carried by currents into the Atlantic Ocean, where vessels often meet and sometimes run against them.

During the six months of the **Arctic night** the aurora often brightens the sunless sky with its brilliant streamers of red, green, and yellow light.

On the **Arctic shores** scarcely anything grows but mosses and lichens.



A hut and a kayak, or native canoe.

The **native inhabitants** of these regions are called Eskimos. They are stunted in body and ignorant in mind. Their lives are spent in hunting, eating, and keeping themselves warm. They kill great numbers of seals and walrus. The flesh of these animals serves for food, their skins for clothing, and their fat for fuel. The Eskimos make many things of bone which we make of wood, iron or other metals.

Few **land animals** can exist in these desolate regions. The most important are the Eskimo dog and the polar bear. The dog is used by the Eskimos to draw their sledges over the snow and ice. The seals and walrus live partly on shore and partly in the water. In the Arctic seas one species of whale makes his home.

Lieut. Peary, now a commander in the United States navy, was sent to Greenland to determine whether or not it was an island.

For his success in this work he received medals from the geographical societies of America and Europe. He made his headquarters at McCormick Bay, on the west coast of



Stone huts or igloos.

Greenland, and made excursions on sledges into the interior and along the coast. The pictures on this page were photographed by one of his party. The photographs were taken at midnight, about the last of June.

Review Topics.—What is said of Newfoundland? St. John's? The Grand Banks. Area. Value. Fish. Fogs. Labrador. Products. Fisheries. Population. Danish America. Greenland. Vegetation. Population. Exports. Towns. Iceland. Its vegetation. Animals. Fish. Population. Chief town. Arctic regions. Northwest Passage. Climate. Icebergs. Aurora. Vegetation. Inhabitants. Animals.



MEXICO, CENTRAL AMERICA, THE WEST INDIES.

COUNTRIES.	Area In Sq. Miles.	Population.
Mexico	767,005	15,805,919
Central America.....		
Guatemala.....	48,290	1,842,134
Salvador	7,235	1,006,848
Honduras.....	46,250	744,901
Nicaragua.....	49,200	500,000
Costa Rica.....	18,400	322,618
Panama	31,570	340,000
West Indies	88,008	5,073,208
Belize or British Honduras.....	7,562	38,981

MAP STUDIES.—Describe the position of Mexico. Of Central America. The West Indies. What waters do these islands nearly inclose?

Mexico.—What country on the north? Southeast? What natural boundaries on the east and west? What peninsulas form parts of Mexico? What isthmus forms a part of

it? What river separates it from Texas? Where is the Gulf of California? Where is Cape San Lucas? What mountains traverse Mexico? What volcanoes in the country? What portions of Mexico are lowland? Where is the capital? What seaports on the Gulf of Mexico? On the Pacific? Where is Chihuahua? San Luis Potosi? Puebla?

Central America.—What are the political divisions of Central America? Which is the most northern? The most southern? Where is the Bay of Honduras? Where is Lake Nicaragua? How is it connected with the Atlantic? Where is the Mosquito Coast? What are the mountains of Central

America? Name some of the volcanoes. Give the capital of each State.

West Indies.—By what bodies of water are the West Indies surrounded? What are the grand divisions of these islands? Where are the Bahamas? What historic interest has Watling Island? Name the largest of the Greater Antilles. The Windward Islands are the southeasternmost of the Lesser Antilles. They are so called because they are on the quarter from which the trade wind constantly blows. Where is the capital of Cuba? Of Jamaica? Of Haiti? Santo Domingo? Porto Rico? Where is Santa Cruz? Curacao? Trinidad? What strait between Florida and the Bahamas?

XLVII. CENTRAL AMERICA.

1. Position.—Central America occupies the extreme southern portion of our continent, and lies between the Caribbean Sea and the Pacific Ocean.

It includes the six Republics of **Guatemala** (*gwah-te-mah'la*), **Salvador**, **Honduras**, **Nicaragua** (*nik-ar-ah'gwah*), **Costa Rica**, and **Panama**, and a British colony known as **British Honduras**, or **Belize**.

The entire population of Central America is not equal to that of the State of New York.

2. In surface Central America resembles Mexico. It is situated in the belt of volcanoes that girdle the Pacific Ocean.

Coseguina (*ko-say-ghee'nah*), in Nicaragua, during its eruption in 1835, darkened the air by its ashes at places 50 miles distant.



Port Limon, showing the railroad, the pier, and a steamer loading with bananas.

3. Minerals.—The mountains are richly stored with gold, silver, copper, mercury, and other minerals.

4. Climate.—The climate is

like that of Mexico; the soil is generous, and it is harvest time the entire year.

Yet these states are not prosperous, because their inhabitants are wanting in industry and skill, and political harmony.

5. Productions.—The principal productions are coffee, bananas, cacao, sugar, indigo, tobacco, and vanilla.

The forests are most luxuriant tropical growths and abound in mahogany, rosewood, and dye-woods.

The chief exports are coffee, bananas, indigo, rubber, hides, and mahogany.

Our largest imports from these states are coffee, bananas, and mahogany. We sell them flour, meats, cloth, iron goods, and machinery.



The Panama Canal was begun by a French company, but the United States bought the rights of that company and is now carrying on the work. This view shows the place where the canal is being dug through a mountain pass. [Copyright, 1904, by the Am. Stereoscopic Co.]



A mountain road from the coast to the plateau in Central America.

6. Race and Religions.—The states of Central America once belonged to Spain. The dominant race is Spanish. The language is Spanish; the religion is the Roman Catholic.

7. Cities.—The largest city is **New Guatemala**. The capitals of the other states are **San Salvador**, **Tegucigalpa**, **Managua**, **Panama**, and **San José**.

Colon, in Panama, is the eastern terminus of the canal; **Port Jimon**, in Costa Rica, is connected by railroad with San José, and ships bananas.

Review Topics.—What part of the continent does Central America occupy? Name the states. Describe the surface. The mineral resources. Climate. Are these states prosperous? Productions. Exports. Race and religion. Capitals.

XLVIII. WEST INDIES.

1. Position and Surface.—These islands are like stepping-stones across the ocean from Florida to the Orinoco; they are in sight from one to another, almost all the way.

They separate the Caribbean Sea and Gulf of Mexico from the Atlantic. They keep out the tidal wave, and make both sea and gulf nearly tideless.

All of these islands are mountainous except the Bahamas, which are low, coral islands.

2. Area.—The area of the whole group taken together is about twice that of the State of New York.



Basse-Terre, on the island of St. Kitts.

3. Divisions.—These islands form three divisions: the **Bahamas**, **Greater Antilles**, and **Lesser Antilles**.

The **Greater Antilles** are Cuba, Haiti, Jamaica, and Porto Rico. The **Lesser Antilles** are the group lying in a semicircle between Porto Rico and the mouth of the Orinoco.

4. Government.—Of these islands, only Cuba and Haiti are independent. Cuba is protected by the United States.

Porto Rico belongs to the United States (see p. 81); Martinique, St. Bartholomew, and Guadeloupe, to France; St. Thomas, San Juan, and Santa Cruz, to Denmark; Curaçao (*ku-ra-so'*) and St. Eustatius, to the Dutch; the Bahamas, Barbados, Jamaica, and most of the Lesser Antilles, to Great Britain.

5. The population is a little larger than that of Pennsylvania. The inhabitants are mostly negroes or the descendants of Spanish settlers. Spanish, English, and French are spoken.

6. Climate.—The West Indies, with the exception of the Bahamas, are all in the **Torrid Zone**. They have a hot



Street scene in Pointe Pièrre, on the island of Guadeloupe.



A sugar mill in Cuba.

climate, and during the summer months an abundant rainfall. No snow ever falls; but frost occurs sometimes on the highest mountains.

7. Productions.—The sugar crop is of more value than all others combined. Next in order are tobacco, tropical fruits, and coffee. The people depend largely for food upon the yam, the plantain, and the banana. Flour and meat are imported from the United States. Other imports from this country are coal, lumber, cotton goods, and iron and steel. The sugar crop of Cuba and the other islands is almost entirely sold to the United States. Tobacco, tropical fruits, coffee, and ginger are other exports.

8. Cuba is called the "Queen of the Antilles." It is 730 miles long, and averages 60 miles in width.

It ranks first in the world in the production of cane sugar. Its tobacco and cigars are the finest in the world. Its forests abound in valuable woods. Its mines yield copper and iron.

Havana, the capital, is a great sugar and tobacco market. It is the largest city and chief port of the West Indies.

Matanzas, Santiago, Cienfuegos and Cardenas are important sea-ports. At Santiago most of the fighting was done during the Spanish war in 1898. Here the Spanish fleet was totally destroyed. Puerto Principe is an important inland city.

9. Haiti consists of two Republics, **Santo Domingo** and **Haiti**.



This island is unsurpassed in agricultural and mineral resources, which as yet are undeveloped. It is inhabited chiefly by negroes and mulattoes, numbering about a million and a half.

Santo Domingo, the capital of the Republic of the same name, is the oldest European city in the New World. It was founded in 1504. **Port au Prince** is the capital of Haiti.

10. Jamaica is the third of the West Indies in size. **Kingston** is its capital.

The cultivation and export of **bananas** is a very large and profitable industry. A special line of steamers is employed in carrying the fruit to the United States.

11. St. Thomas derives its importance from its fine harbor. It is a free port, where vessels pay no harbor dues.

In consequence of this, the West India **mail-steamers** of England and France make it their rendezvous, where they meet the smaller steamers from neighboring ports, and exchange cargoes and passengers.

12. Barbados is the headquarters of English troops in the West Indies. Sugar is the staple product.

Santa Lucia is a highly fortified naval station of Great Britain.

13. Trinidad (*Trinity*) almost joins South America.

It is celebrated for a lake of pitch or **asphalt**, from which immense quantities are annually taken, there is no perceptible diminution of it. Asphalt is used to make the composition with which many sidewalks and streets are paved. Trinidad belongs to Great Britain.



3. Shipping cigars.

apples, cotton, and Sisal hemp are exported.

Watling Island was the first land discovered by Columbus in 1492.

The **Turk's Islands**, which are among the Bahamas, export large quantities of salt. This is obtained from sea-water evaporated in "salt pans."

Nassau, the capital of the Bahamas, is a great resort for invalids.

15. The Bermudas, which consist of 360 coral isles, lie to the north of the West Indies. They belong to Great Britain. About 20 of them are inhabited. They are famed for their lilies, onions, and potatoes. Large quantities are exported.



At Nassau, the capital of the Bahamas.—Loading a steamship with bananas.

The houses are built of blocks of coral sawed into shape. These harden when exposed to the air.

Review Topics.—Location of the West Indies. Surface. Area. Divisions. Name the Greater Antilles. The Lesser. Political condition of the islands. Population. Language. Climate. Productions. Describe Cuba, Havana, Haiti, Jamaica, St. Thomas, Barbados, Trinidad, The Bahamas, The Bermudas,

SOUTH AMERICA.

XLIX. PHYSICAL FEATURES.

1. **South America** is triangular in shape. It lies partly in both the northern and the southern hemispheres; but by far the larger portion of it is in the southern.

2. **Surface.**—The surface of the continent is naturally divided into four regions: I. The **Andean Plateau**; II. The **Highland of Brazil**; III. The **Highland of Guiana**; IV. The **Great Central Plain**, which extends the entire length of the continent.



On the Andean Plateau.

MAP STUDIES.—What two oceans surround South America? What sea on the north? Great ocean current on the northeastern coast? What great current on the west coast? What is the shape of the continent? What directions have the Atlantic coasts of South America? What is the general direction of the Pacific coast? What bay and gulf on opposite sides of the Isthmus of Panama? What island forms the southern extremity of the continent? What group to the east? What islands off the northern coast? What island at the mouth of the Amazon? What strait between Tierra del Fuego and the mainland? What is the most northern point of the continent? Southern? Eastern? Western? What winds blow constantly within the Tropics? Which of these winds blows upon the coast between Cape St. Roque and Cape Frio? What part of the coast is rainless? What cape on the Brazilian coast near the Tropic of Capricorn? What desert on the western coast opposite this slope?

Surface.—Judging by the colors of the map, is most of South America high or low? Where is the most elevated portion? What mountains form it? Point out the Cumbre (*koom-bray*) Pass. (The railroad from Buenos Aires to Valparaiso is to cross the pass.)

Where does the lowland chiefly lie? What two highlands in the eastern part of the continent? What great plateau in the western? What lies between these high regions? What three river basins does the Central Plain comprise? What name is given to the grassy plains in the valley of the Orinoco? To the forest plains of the Amazon? Where are the pampas?

Rivers and Lakes.—What great rivers drain South America? Among what mountains does the Amazon rise? Where is the Huallaga? The Ucayali (*oo-ká-yá-lé*)? The Madeira? Tapajos? Tocantins? In what general direction do they all flow? In what direction does the Amazon flow? How many mouths has it? In what direction does the Orinoco flow? The Paraguay? Where are the three largest branches of the La Plata? By what rivers could you pass from the Orinoco to the Amazon? What lake near the northern coast? On the Bolivian Plateau?

Climate.—In what zone is all of South America north of Cape Frio and the Desert of Atacama? Through what river-valley does the equator pass? What kind of climate, then, is found in most of South America? In the most southern portion?

3. **Andean Plateau.**—The Andes skirt the shores of the Pacific all the way from Patagonia to Panama.

They consist of parallel ranges called **cordilleras**, of which the two most important are known as the cordillera of the Coast, and the cordillera of the Interior.

Between these are elevated plateaus, the highest of which is the **Plateau of Bolivia**.

All the way from the Strait of Magellan to the Isthmus of Panama, there is, arranged along the top of the Andes like a line of sentinels, a succession of snow-capped **volcanoes**, many of them higher than the highest peak in North America. Some of them reach the height of about 25,000 feet.

4. **The Highland of Brazil** extends from the La Plata northward, nearly to the Amazon. It is traversed by parallel ranges of mountains, some of which are from 5,000 to 8,000 feet high.

5. **The Highland of Guiana** rises abruptly from the plain between the Orinoco and the Amazon.

6. **The Great Central Plain** consists of the valleys of the Orinoco, the Amazon, and the La Plata.

The elevations which separate the headwaters of these streams are so low that the **three valleys** may be considered as forming **one great plain**. Hence, with trifling exceptions, all the rain that falls on the continent finds its way back to the sea through the Amazon, the La Plata, and the Orinoco.



The Great Central Plain. View on the pampas of Argentina, with the Andes mountains in the distance.



On the Brazilian Highland. This is an old plateau worn down like the New England plateau. The train of pack mules shows how merchandise is carried into more inaccessible parts of the Brazilian Highland and its products carried to the nearest railroad or to the coast.

Productions.—What minerals are found among the Andes? Where is the diamond region of South America? On what part of the coast is nitrate found? Where is guano found? (*Guano is used as a fertilizer.*)

Name some of the vegetable productions of the Valley of the Amazon. Where do you find cinchona bark? Wheat? What are some of the vegetable products of the Brazilian Highland? Where do you find the manioc? Where is India rubber found? What valuable cabinet woods are found in the Amazon Valley?

Animals.—What animals abound on the Pampas? Where is the condor found? The armadillo? The sloth? For what shell-fish is Guayaquil famed?

What curious fish in the Orinoco? What dangerous animal in the Amazon Valley? What birds and insects are found here? What sea-bird in the South Atlantic? What bird belongs to the southern extremity of the continent?



Different portions of the Great Central Plain are called **Pampas**, **Selvas**, and **Llanos**.

Pampas.—The vast plains of the La Plata are known as Pampas. They resemble our prairies.

During the **wet season** they are clothed with a rich growth of tall grass, and clumps of thistles ten or fifteen feet high; but the long summer **droughts** destroy the vegetation, and these pampas become arid wastes.

Selvas.—The Selvas are densely wooded plains occupying a large part of the valley of the Amazon.

The **vegetation** here is of the most remarkable and luxuriant description. The **trees** are of gigantic growth and endless variety.

Air-plants and **climbing vines** of the most fantastic shapes, with leaves of extraordinary beauty, and the most brilliant and curious flowers, hang from the branches and festoon the forests.

Among the trees are the India rubber tree, the cow-tree, and palms in great variety; among them is the wax-palm, from which valuable wax is obtained.

The **Llanos** (*lyah'nōz*), or plains of the Orinoco, extend from the shores of the Caribbean Sea to the foot of the mountains. They are dotted here and there with clumps of trees.



The llanos. View in western Venezuela taken during the dry season, showing the Andes mountains in the distance.

In the **rainy season** a vast extent of these plains is overflowed, and becomes, like the borders of the Lower Nile, a boundless sea. After the flood subsides, a most luxuriant growth of grass and flowers appears.

In the **dry season** the verdant plains become barren wastes.



A bore coming up the mouth of the Amazon. It looks like a heavy surf rolling up on a sandy shore, but the breakers are caused by the meeting of the strong current and the tide.

7. Rivers.—The three great rivers, the **Amazon**, the **La Plata**, and the **Orinoco**, with their tributaries, include nearly all the large streams of South America, and constitute the grandest system of watercourses on the globe.

The **Amazon** is one of the longest and largest rivers in the world. It rises in Lake Lauricocha, in the Andes, and flows across the continent. Its length is upwards of 3,700 miles.

In some places, even far away from the sea, it is so **broad** that a vessel sailing upon it may be out of sight of land.

The Amazon drains a larger area and discharges more water into the ocean than any other river. Its **current** is perceived 200 miles out at sea; while the **tide** is felt 400 miles up its channel.

Sometimes the tide, instead of rising slowly, enters the mouth of the river as a perpendicular wall of water. This is called a **bore**. A mass of water 12 or 15 feet high rolls up the stream with a roar that is heard at the distance of 5 or 6 miles.

From the Rio Negro to the Ucayali the Amazon is known as the **Solimoes**, and above the Ucayali river as the **Marañon**.

The **Orinoco**, with its tributaries, flows through the northern portion of the Great Plain, and drains the mountain region of Guiana.

This river is connected with the Amazon by the **Cassiquiare** and **Negro** rivers, so that an Indian in his canoe may pass from the Amazon to the Orinoco.

The **La Plata** is the Mississippi of South America. Its course, unlike that of the Amazon, is not along parallels of latitude, but, like that of the Mississippi, across them.

COUNTRIES.	Area in Sqr. Miles.	Population.	COUNTRIES.	Area in Sqr. Miles.	Population.
The Guianas...	201,910	375,756	<i>Republics.</i>		
<i>Republics.</i>			Peru.....	695,733	4,609,999
The United States			Bolivia.....	703,400	2,181,415
of Brazil.....	3,218,130	14,333,915	Chile.....	307,620	2,712,145
Venezuela.....	593,943	2,444,816	Argentina.....	1,185,840	5,160,986
Colombia.....	473,202	3,916,366	Paraguay.....	157,000	530,103
Ecuador.....	116,000	1,400,000	Uruguay.....	72,210	978,072

MAP STUDIES.—What country occupies most of the eastern portion of South America? The southern? What countries are traversed by the Andes? Which border on the Caribbean Sea?

Brazil.—What two states do not touch Brazil? What great river drains a large part of Brazil? How near the Pacific is its source? Through how many degrees of longitude does it flow? What two rivers have their source near the town of Diamantino? What do you judge from the fact that one flows north and the other south? What river enters the Atlantic south of Cape St. Augustin? What portion of Brazil is mountainous? Where is Rio? Bahia? Pernambuco? Para? Maranhao?

Guiana.—To what nations do the Guianas belong? What are their capitals?

Venezuela.—What countries east of Venezuela? South? West? Sea on the north? Name its great river. What lake in the northwest? Island off the mouths of the Orinoco? Capital? Where is Maracaibo?

Colombia.—What countries border on Colombia? What sea north? What cape forms the northern extremity? What isthmus does it contain? What two ports on opposite sides of the isthmus? Where is Cartagena? Medellin? Barranquilla? What is the capital?

Ecuador.—What countries border on Ecuador? What circle crosses it? Name its volcanoes. Gulf off the coast. Capital. Seaport.

Peru.—Where is Peru? What cape and point on the coast? Islands off the coast? What rivers traverse Peru? Where is Lake Titicaca? Cuzco? Lima?

Bolivia.—What countries touch Bolivia? Name some of the rivers. Where is La Paz? Sucre? Mt. Sorata? Mt. Illimani?

Chile.—In what zones is Chile? On which side of the Andes? Where is Valparaiso? Santiago? Where is the island of San Juan Fernandez?

Argentina.—What river drains the northern part? Name its chief tributaries. Where is the Strait of Magellan? Tierra del Fuego? Cape Blanco? Buenos Aires? Rosario? Cordoba? Mendoza?

Paraguay.—What countries touch Paraguay? What is the capital?

Uruguay.—What countries touch Uruguay? What is the capital?



From north to south the *La Plata*, with its tributaries, the **Paraguay** and **Parana**, traverses 23 degrees of latitude. It drains the southern portion of the Great Plain.

On the western side of the Andes, all the way from Patagonia to Panama, the rivers are small in volume and short in course.

The mountains are too near the coast to allow the drainage to gather into large streams.

Review Topics.—Shape of South America. Divisions of surface. Andes. Plateau. Volcanoes. Highland of Brazil. Of Guiana. Great Central Plain. Pampas. Selvas. Llanos. The great rivers. The bore. Rivers on the west of the Andes.

L. CLIMATE, PRODUCTIONS, INHABITANTS.

1. Climate.—The larger part of South America lies within the tropics.

The **Temperature** of the lowlands is hot; that of the plateaus is variable, depending upon height above the sea-level.

Thus, a traveler ascending the Amazon would find in the valley of the Ucayali a **spring climate** all the year. Passing on into the valley of the Huallaga (*hwal-yah'gah*), a cooler climate still would await him. Along the **Upper Amazon**, he would find himself in a superb wheat, corn, cattle, hemp, and tobacco country, with bright skies and pleasant days at all seasons. Still higher he would enter, at the height of 16,000 feet, the region of **perpetual snow**.

South of the Tropic of Capricorn the temperature is moderate. The extreme southern portion of the continent is very cold.

Moisture.—The northeast and southeast trade winds, which come from the sea, are laden with moisture when they reach the land. As they ascend the eastern slope of the Andes, they get cooler and cooler, and as they cool they drop down their moisture in the shape of rain or snow. Crossing the snowy heights of the Cordilleras, they finally reach the western slopes completely robbed of moisture. Consequently, those **western slopes** are nearly rainless.

Every drop of water has been wrung from the winds while crossing the Andes, and we see it returning eastwardly to the sea in the shape of mountain streams and majestic watercourses.

The **eastern slopes** of the Andes, therefore, are clothed with trees and verdure. The **western slopes**, for nearly 2,000 miles, in Peru, and the northern part of Chile, are parched and barren.

South of latitude 30°, however, the prevailing winds are from the west, and there the conditions are reversed; there the western side is the rainy, and the eastern the dry side.

Had the Andes been on the east coast instead of the west, tropical South America would have been a desert.

2. Minerals.—South America is one of the richest mineral

regions of the globe. Gold and silver, precious stones, and other metals abound.

3. Productions.—All the great agricultural productions of the world may be successfully cultivated in South America.

Cotton, sugar, tobacco, cacao, coffee, the banana, rice, the rubber, from whose root tapioca is prepared—spices, indigo, dyestuffs, ornamental woods abound in this region.

The **great plains** are very productive of wheat and other grains, and furnish pasturage for countless herds of cattle and horses.

4. The Animals are remarkable, and are very unlike those of the other continents. Among them are the long-tailed marmosets; the rhea, a bird somewhat like the African ostrich; the electric eel, that shocks even horses to death; the capybara, that somewhat resembles a pig and is good to eat; the vicuña, the guanaco, the llama, and the alpaca.

5. Inhabitants.—The native inhabitants of South America are called Indians. They occupy a large part of the continent. Many of them are still in a savage state.

A great number of the present population are descended from European settlers, of mixed descent.

The **people of Brazil** are chiefly of Portuguese descent and speak the Portuguese language, nearly all the other countries of South America.

the inhabitants are of Spanish and speak the Spanish language.



A Chilean home in Santiago.



On a stock farm in Chile. The cowboys are assembled for orders. The general superintendent is in the center.

is the effect upon the eastern slopes? The western? What conditions of lat. 30°? South America as a mineral region. Chief products. Inhabitants.

LI. BRAZIL, GUIANAS, VENEZUELA.

1. Brazil.—Brazil is the largest and most important country of South America. It is larger than the United States and Alaska. Until 1889 it was an empire. It is now a republic consisting of a number of states united like our own.

Physical Features.—The northern portion occupies the greater part of the valley of the Amazon, and includes the great selvas. The central and southern portions are table-land.

Brazil has 30,000 miles of inland navigation. The Amazon drains most of the country. From its length and volume the Indians call it the "King of Rivers."

2. Productions.—Brazil is rich in mineral wealth, but little has been done to make use of it, though gold and diamonds are carried on to a considerable extent.

Silver, lead, zinc, iron, and manganese are found, but there

Review

—Climate of South America. Changes of temperature in the northern part of the continent. What winds bring rain to South America? How do these winds determine their moisture?



View of the harbor of Cayenne. Notice that it is unprotected. In the foreground is the quay, where men and merchandise are landed.

7. The Guianas.—These three provinces belong respectively to the British, French, and Dutch. They are the only portions of South America now dependent upon any European power.

8. The scenery is wonderfully picturesque.

Long, flat-topped **mountains** rise abruptly from the plain, with precipitous sides like walls of masonry. Of these, **Mt. Roraima** is the most remarkable. It is 18 miles long and 7,500 feet high.

In this region the **rainfall** is very great. The north-east trade-wind brings to it copious volumes of moisture.

The rivers, dashing down the mountain sides, form beautiful cascades and waterfalls. The **Great Kaieteur** waterfall makes a clear leap of 822 feet. The **coast** country is low, flat, and swampy.

9. Life.—The air is filled with insects; the forests teem with wild dogs, tiger-cats, and armadillos; the tree tops are lively with songsters, and noisy with howling monkeys.

Exports.—Coffee, sugar, gold, and the products of the forests are the exports.

10. Towns.—The capitals are the largest towns. **Georgetown** is the capital of British Guiana, and **Paramaribo** the capital of Dutch Guiana. These are the centers of trade. **Cayenne** (whence we get cayenne pepper) is the capital of French Guiana.

11. Venezuela.—The Republic of Venezuela is about twice the size of Texas.

The early Spanish explorers, observing that the natives had built their houses on piles along the shores, called the country Venezuela, a word meaning "Little Venice."

12. Surface.—The northwest and southeast portions of Venezuela are mountainous. More than two-thirds of the country, however, consist of **llanos** (grassy plains), upon which millions



A farmhouse, or hacienda, on the plateau of Venezuela.

13. Productions.—Among the mountains are rich deposits of gold and copper, which are extensively worked. Salt is

mined extensively, and is gathered from shallow lagoons on the shore.

The leading productions are gold, coffee, sugar, cacao, hides, and rubber.

The flora of Venezuela is wonderfully rich and varied. A species of mimosa, or sensitive plant, grows here, which spreads out its umbrella-shaped top until it attains the enormous proportions of several hundred feet in circumference. Orchids, with flowers of curious form and brilliant hue, cling to the branches of the forest trees. The "cow-tree" also is found here; the natives tap it and draw from it a milk-like beverage.

The chief exports are coffee, cacao, gold, and cattle products.

Several lines of steamers ply between Venezuela and the ports of Europe, and the United States. Nearly half the foreign trade is with this country, from which Venezuela buys cotton cloth, food products, kerosene, and lumber in exchange for coffee and asphalt.

14. Cities.—**Caracas**, the capital, is subject to earthquakes. It was nearly destroyed by one in 1812.

It is 6 miles from its port, **La Guayra**, and about 3,000 feet above the sea. Immediately in the rear is the "Silla" (*the saddle*), a mountain with two peaks rising to the height of 8,600 feet. These peaks may be seen many miles out at sea, and are landmarks well-known to the navigator.

Valencia, Maracaibo, and Ciudad Bolivar, on the Orinoco, are centers of trade.

On the island of **Trinidad** asphalt exists in such quantities as to form a lake. A great deal of the asphalt used for paving in the United States is imported from this island, which belongs to Great Britain.

Review Topics.—Rank and size of Brazil. Government. Surface. Inland navigation. Drainage. Mineral products. What is said of the coffee of Brazil? Other agricultural products. Sugar. What do the forests yield? For what are cattle chiefly raised? Principal pursuits. Commercial facilities. Discovery. People and religion. Rio. Para. Bahia. Pernambuco. To what powers do the Guianas belong? Their scenery. Waterfalls. The coast country. What is said of the animal life? Chief exports. Towns. What do we get from French Guiana? What is the size of Venezuela? Why so called? What of the surface? Great river. Mineral products. Agricultural Exports. What is said of Caracas? Other cities.



Loading a schooner with fruit at Ciudad Bolivar on the Orinoco.

LII. THE ANDEAN STATES.

1. The Andean States are Colombia, Ecuador, Peru, Bolivia, and Chile. They comprise a region very remarkable for its volcanoes and earthquakes.

2. Chile lies altogether on the western slope of the Andes. It is for the most part in the South Temperate Zone.

3. Colombia, Ecuador, Peru, and Bolivia are within the Tropics, and are similar in surface, climate, and vegetation.

4. **Physical Features.**—Colombia, Ecuador, and Peru lie on both sides of the Andes. Each of them includes a narrow coast plain, a large area of mountains and table-lands, and a portion of the low forest plain at the eastern base of the mountains. Bolivia resembles its companion states, except that it has no seacoast.

5. **Climate and Vegetation.**—These states have every variety of climate and vegetation that can be found between the polar regions of eternal frost and the tropical regions of everlasting summer.

Here, seated at the foot of a mountain, and surrounded with the luscious fruits of the tropics, one may cast his eyes up toward the snow-capped peak above him, and take in at one view the whole range of the vegetable kingdom.

Noted among the products is **cinchona**, or Peruvian bark, the bark of the cinchona tree. It yields the valuable medicine, quinine. The tree is indigenous to the eastern slopes of the Andes, north of latitude 23° S., and to no other part of the world. It is successfully cultivated, however, in India and Java, Central America, and the West Indies.

6. **The Mineral Resources** of the Andean States are unsurpassed. They resemble those of our own Pacific Highland.

7. **Trade.**—The rugged heights of the Andes present a formidable barrier to communication and commerce between the countries on their opposite sides.

Two railways, however, already cross these mountains and connect Bolivia with the Pacific; another is being constructed from Chile into the Argentina; another leads from Callao to Pasco along the head-waters of the Amazon. But transportation is in general carried on by means of mules or llamas, and is exceedingly tedious and dangerous.

The llama is the camel of the New World. A million of them are employed as beasts of burden in Bolivia alone.

8. **Colombia.**—The Republic of Colombia is well situated for commerce, as it has long strips of coast and good harbors on both

the Caribbean Sea and the Pacific Ocean. In the llano region great herds of cattle are kept.

Colombia formerly included the Isthmus of Panama, but recently Panama declared its independence, and set up a separate government of its own.

9. **Productions.**—Silver, gold, platinum, and precious stones abound. The emeralds are the purest in the world.

The agricultural productions of every climate may be raised here.

The chief exports are coffee, gold, silver, live-stock and hides, tobacco, and India rubber. Coffee, cocoanuts, hides, and bananas are sent to the United States in exchange for our flour, cloths, meats, coal, and kerosene. The forests of the low plains contain many varieties of palms and bamboo. Higher up in the mountain regions grow the cinchona and the tree ferns.

10. **Cities.**—Bogotá, the capital, is situated about 9,000 feet above the sea level. It has two rainy seasons annually, and its climate all the year round is delightful.

Medellin, Cartagena, and Barranquilla are important commercial towns. Bucaramanga and Cucuta are large coffee centers. A considerable trade passes down the Magdalena.

11. **Ecuador.**—Ecuador is the Spanish for equator. This Republic is crossed by the Equator; hence its name.

It contains a remarkable group of volcanoes.

Among them is the dome-shaped Chimborazo, one of nature's most imposing structures, standing at the enormous elevation of four miles above the level of the sea. I have seen this mountain by moonlight at a distance of ninety miles.

Another of this wonderful array of burning mountains is the grand and terrific Cotopaxi. The noise of its eruptions is said to have been heard at the distance of six hundred miles.

The condor, the largest bird of flight in the world, dwells among the rugged heights of the Andes. He is fond of feeding upon the shell-fish found on the beach of Ecuador, and will leave his home, 100 miles distant, twice a day to secure his meals.

12. **Productions.**—Ecuador contains deposits of gold, of emeralds, quicksilver, iron, and copper and coal. Of agricultural products, the most important is cacao.

The principal exports are cacao, coffee, vegetable ivory, gold, Panama hats, rubber, and hides. The imports are cotton and woolen goods from Europe, and machinery, flour, lumber, and kerosene from the United States.

13. **Cities.**—Quito, the capital and largest city, is situated



Silver mine in Peru, showing sacks of silver ready for shipment.



Coal mines at Lota.



Punta Arenas (sandy point), Chile, at the southern end of the Andes. The most southern town in the world.



Market in Quito, Ecuador.

nearly two miles above the level of the sea.

No less than eleven peaks, all white with their snow-caps, are in full view from the plaza, or great public square of this city.

Guayaquil, the principal seaport, has extensive manufactures.

The Galapagos, or Turtle Islands, so called from the gigantic tortoises found here, belong to Ecuador.

Review Topics.—Name the Andean States. Which lies entirely west of the Andes and mainly in the temperate zone? Which are within the Tropics? In what are these alike? Physical features. Climate and vegetation. What is said of the cinchona tree? The mineral resources. How is trade carried on across the Andes? The llama. How is Colombia situated? The Isthmus? The railway. Mineral products. Agricultural. Exports. Bogotá. Other towns. Why is Ecuador so called? Chimborazo. Cotopaxi. The condor. Mineral productions. Agricultural. Exports. Quito. What is its port? Galapagos Islands.

LIII. PERU, BOLIVIA, AND CHILE.

1. Peru.—Peru has been famed from the earliest times for the almost fabulous wealth of its mines.

Silver and gold, quicksilver, copper, lead, and iron abound. The silver mines of Pasco are among the most celebrated in the world.



Railroad on the western slope of the Andes in Peru, 13,000 feet above sea level, showing the barren regions, with Mt. Misti and Mt. Chimbarrí towering above it.

Many years ago silver was used in Peru as the baser metals are with us; tires of carriage-wheels, and the commonest household utensils were of solid silver. I have seen there, in the early days of the Republic, Indians sitting at dinner on the dirt floor of their hut, and eating, without the aid of knife, fork, or spoon, out of a massive silver dish.

2. Rainless Region.—West of the Andes Peru is nearly rainless.

I have seen wheat piled up on the wharves of Callao, lying there for months together in the open air, with no more protection from the weather in that rainless port than if it had been a pile of paving-stones.

The sea along this rainless coast is the most gentle part of the ocean. It is seldom ruffled by a storm. *Rainless shores* are washed by *stormless seas*.

Western Peru is supplied with water, both for drinking and for irrigating the fields, from the mountain streams formed by the melting snows of the Cordilleras. Cultivation depends almost entirely upon irrigation.

3. Productions.—This rainless country, wherever there is water, produces the most beautiful flowers and delicious fruits.

The cotton-plant, tobacco, and the sweet potato grow all the year, and the tobacco produces continuously. Medicinal plants, such as the coca shrub and the cinchona tree, and valuable dye woods, are found in the forests. Large quantities of rubber also are gathered and sent down the Amazon to Para.

The chief exports are silver ore, sugar, cotton, coffee, guano, and the wool of the alpaca. All these products except the first are exported to some extent to the United States in return for our machinery, lumber, flour, cars, and kerosene.

Peru is one of the leading South American States in the construction of railways and telegraphs.

Early Civilization.—When Europeans first visited South America, Peru was occupied by a highly civilized tribe of Indians. The remains of their great road from Quito to Cuzco, and thence along the plateau of the Andes into Chile, are still to be seen. This road was 1,500 miles long and 40 feet wide. In constructing it, ravines were crossed by suspension bridges, and galleries were cut through the rock. In Cuzco was the great temple of the sun, which, in its day, far surpassed in costliness of decoration any edifice in Europe.



A wire bridge over a mountain stream on the eastern slopes of the Andes in Peru.

4. Cities.—Lima, the capital, has a noble cathedral, a museum, and a national library. Its houses are built of sun-dried clay. Earthquakes have desolated it repeatedly. It has railways to Callao and other points.

Callao is the port of Lima.

Arequipa (*ar-ek-epah*), the second important city, is noted for its manufacture of gold and silver tissue, and cottons and woollens. Like Lima, it has been laid in ruins several times by earthquakes. The great volcano of Misti, a truncated cone, rises on the outskirts of the city to the height of nearly 20,000 feet.

Pasco, nearly 14,000 feet above the sea, is the highest city in the world.

5. Bolivia was named in honor of the South American "Liberator," Bolivar, to whom it owes its independence.

6. Surface.—This republic is very mountainous, and completely shut in from the sea. Western Bolivia contains the highest plateaus and ridges of the Andes. Lake Titicaca is partly in Bolivia. It is nearly 13,000 feet above the level of the sea. Here the pressure of the atmosphere is greatly diminished, and evaporation is so rapid

that the water is taken up from the lake as fast as the rivers pour it in. The lake is navigated by steamers.

7. Climate.—East of the Andes the country is generally well watered and fertile, but dry on the west of them.



Street in Lima.



A square in La Paz and a drove of llamas loaded with merchandise.

bound in silver, copper, and tin.

One of the products of Bolivia and Peru is the plant called *coca*, which resembles tea.

The leaf is chewed with unslaked lime by the natives of a large part of South America, somewhat as the betel-nut is used in the East Indies. It enables those who use it to endure great fatigue for a short time.

The chief exports are silver, tin, rubber, bismuth, cinchona, and coca. On account of its inland situation, Bolivia has little foreign trade. Cottons and woolen goods, machinery, and hardware are imported by way of *Molendo* and *Antofagasta*.

9. Cities.—The most important cities are on the plateau. They have access to the Pacific by means of steamers on Lake Titicaca and the Peruvian railroad across the Andes.

La Paz is the chief city. **Sucre** (*soo'kray*) is the capital, though the government usually meets at La Paz.

La Paz manufactures hats and woolens, and is the center of the coca and cinchona trade. **Sucre** has a university and a school of mines.

Cochabamba contains factories of woolen and cotton goods and glassware.

Potosi, more than 13,000 feet above the sea, is near the famous silver mines. In its best days, when the mines were worked, it numbered 130,000 inhabitants. At present it contains only about 12,000. The mines of Potosi have yielded silver to the amount of 600,000,000 dollars.

10. Chile.—Chile is a narrow strip of country lying on the western slope of the Andes, and extending to the sea.

The northern portion comes within the rainless region. It



A farm in southern Chile. Here the streams have cut down the mountains and made a wide, fertile valley. Compare with the narrow, barren valley in northern Chile, where there is no rain.

8. Products.—Bolivia, like Peru, is rich in minerals. The mountains a-

contains the desert of Atacama (*ah-tah-cah'mah*). South of latitude 30° the rainfall is abundant. The prevailing westerly winds, coming from the Pacific, are laden with moisture which the Chilean Andes wring from them.

In Peru and northern Chile the western slopes of the Andes are **rainless** and **barren**. In central and southern Chile the western slopes of the Andes are very fertile, making Chile the granary of all that part of South America bordering on the Pacific Ocean. In the southern part are vast tracts of valuable forests, and lumbering is becoming a leading industry.

11. Productions.—Chile is a mineral region. Its copper and silver mines are profitably worked. Coal is extensively mined. The **nitrate** deposits of Iquique (*ē-kē'kay*) are its most valuable form of mineral wealth.

Nearly five hundred million tons of nitrate have been taken from the Chile fields and exported, largely to Europe. The nitrate mines are run almost entirely by British capital. In the last few years there have been established sugar refineries, sawmills, machine shops, and quite extensive cotton factories. Manufactured goods are, however, largely brought from Europe.

Chile produces the finest of wheat and the best of timber. The chief exports are nitrate, copper, silver, and wheat.

The United States imports from Chile nitrate, wool, copper, and lead. Our exports to Chile are cloth, kerosene, iron and steel goods, lumber, and farming tools. Chile's foreign trade is chiefly with England.



Lake Titicaca, and the straw boats used there.

12. This republic is one of the most enterprising in South America. It has public schools, good roads, and railroads connecting the larger towns.

Juan Fernandez, the scene



Antofagasta, on the desert coast of Chile. Ships tie near the shore, and freight is carried to and from them on boats called lighters. Notice one filled with horses. The second cut shows how cattle are hoisted to the ships.

of the solitary residence of Alexander Selkirk for four years, is an island in the Pacific belonging to Chile.

The **Araucanian Indians** are found in the southern part of Chile. They are one of the most remarkable of uncivilized races. By their great courage they maintained their independence for centuries, but at length submitted to the Chilean Government.

13. Cities.—**Santiago** is the capital; it has electric lights, street cars, and is a progressive city.

The other important cities on the plateau are **Concepcion**, **Chillan**, and **Talca**. They are markets for grain and cattle. **Antofagasta** and **Iquique** ship nitrates.



Valparaíso. Notice the hills upon which the city is built, and the narrow plain along the waterfront. There is a quay at which ships discharge cargo. The harbor is so crowded that most of the ships lie at anchor, and freight and passengers go to them on lighters and small boats.

Valparaíso, the port of Santiago, and connected with it by railway, is the chief seaport of South America on the Pacific.

Review Topics.—For what is Peru noted? Climate. Farming. Agricultural productions. Exports. Rank in railways. Who were the ancient inhabitants? Describe their great highway. Temple. What is said of Lima? Callao? Arequipa and its volcano? Pasco? Why was Bolivia so named? How is it situated? Lake Titicaca. What is said of its elevations? Minerals? Coca. Exports. Where are the most important cities? How connected with the Pacific? What is said of La Paz? Sucre? Cochabamba? Potosi? How is Chile situated? What part is desert? What is said of the rainfall? What makes Chile the granary of South America? The mineral products. Agricultural. Exports. Public Education. What island belongs to Chile? Santiago. Valparaíso. The Araucanian Indians.

LIV. THE LA PLATA STATES.

1. The La Plata States include **Argentina, Paraguay, and Uruguay.** With the exception of Patagonia, which now forms a part of Argentina, they all lie in the valley of the Rio de la Plata.

Rivers.—The La Plata, with the Parana and Paraguay, forms a continuous water route for the commerce of this valley. Large steamers ascend far above Asuncion, while smaller ones penetrate to Cuyaba, in the heart of Brazil.

The valley of the La Plata has one of the finest climates in the world, free from frost and remarkably healthful.

2. **Products.**—The greater part of this region is a fine agricultural and grazing country. It is one of the world's greatest wool producers and a leading section in the export of beef, mutton, and other animal products.

Its soil is adapted to the cultivation of wheat, corn, coffee, tobacco, sugar, rice, cacao, hemp, flax, indigo, and manioc.

Great numbers of cattle feed on the grassy pampas.

The **exports** of the La Plata States are chiefly hides, horns, tallow, mutton, wool, wheat, tobacco, and yerba maté (*mah'tay*).

Argentina imports textiles, clothing, pottery, glass, and machinery from Great Britain and Germany. From the United States she receives farming machinery, oil, lumber, twine, wire, railroad supplies, tools, and hardware. Next to animal products and wheat, flax-seed and sugar are the most important exports. We buy of Argentina raw wool, hides, goatskins, and the bones, horns, and hoofs of the cattle slaughtered. What use do we make of these things?



View in Paraguay. — Cattle on the pampas of the La Plata.

3. **The Inhabitants** are Indians or descendants of European races. They are Roman Catholic in religion.

The herdsmen, who live on the pampas and are called **gauchos**, are most expert horsemen. They chase the ostrich, the wild horse, and the bullock, and throw the bola, a kind of lasso, with such precision that they can catch the animal by the foot while it is lifted in flight.

4. **Argentina** is the largest state in South America, except Brazil. It is a republic. It contains the pampas.



Ships loading with beef at one of the wharves on the La Plata river at Buenos Aires.

About 30,000,000 cattle and 75,000,000 sheep are pastured on the pampas. The public lands are sold in large tracts to the ranchmen, who divide them into sections which they fence with wire. A few men can thus take care of large herds. The ranch owners are mostly Englishmen and Scotchmen. The best cows are kept for dairy purposes. The best beef cattle are shipped alive to Europe. Fat sheep and lambs are also sent in the same way. But the live animals exported are equal to only one-sixteenth of the frozen and dried beef. The largest refrigerating plant for meat in the world is at Buenos Aires. A million carcasses of beef and three million of sheep are frozen and exported annually.

The **population** is largely foreign. The liberal policy adopted toward settlers attracts many immigrants from Southern Europe.

Argentina has more miles of railway than any other South American country. In educational advantages it excels all the other states of South America except Chile.

5. **Cities.**—**Buenos Aires** (*bo'nus a'riz*), the capital, is also the chief city of South America and seaport of the La Plata basin. Numerous lines of steamers connect it with foreign ports.

Cordoba, La Plata, and Rosario are important towns. **Tucuman** stands in the garden spot of the Republic.



Mayo Street, one of the principal business thoroughfares of Buenos Aires, the metropolis of the continent.



A holiday in Asunción.

Patagonia and Tierra del Fuego comprise the southernmost parts of South America. These regions belong to Chile and Argentina. The climate of Southern Patagonia is very severe. The inhabitants of Patagonia are remarkable for their height. Many of them are nearly seven feet high. They are mostly nomads, and devote themselves either to herding cattle and sheep or to hunting the ostrich and guanaco.

The **Falkland Islands** are a British Colony. The coasts teem with albatross and penguin, and the waters with fish. The islands are treeless, but "tussac grass," five or six feet high and resembling miniature palm-trees, fringes their borders. Sweet-scented wild flowers abound.

The population is about 2,000. Stock-raising is the chief industry. Wool, hides, skins, and leather are sent to the mother country in exchange for manufactured goods.

6. Paraguay.—Paraguay is a small and unimportant republic. It is without any seacoast; but the Parana and the Paraguay rivers furnish communication with the ocean. **Asunción** is the capital. The climate and soil are adapted to both tropical and temperate productions. Maize, manioc, tobacco, and oranges

are raised extensively. Yerba, tobacco, and cattle products are exported. Our exports to Paraguay are chiefly hardware, kerosene, and canvas; our imports, hides and vegetable extracts.

Yerba (*the vegetable*) is the dried leaf of a kind of holly. From it maté, or Paraguay tea, is made, which is a favorite beverage in South America.

7. Uruguay.—Uruguay is the smallest of the South American republics, but one of the most progressive. Public education is obligatory. The country is almost entirely a grazing region. The wool product is very large and forms the chief export.

Montevideo, the capital, has an extensive commerce in cattle products. France, Belgium, and England are the largest customers. The La Plata at Montevideo is more than 60 miles wide.



Bird's-eye view of Montevideo, showing the harbor and the ships with which it is always crowded.

Review Topics.—The La Plata States. Navigation of La Plata. Climate. Products. Exports. The inhabitants. Argentina. The pampas. The ranches. In what does this state take the lead? Buenos Aires. Other important places. The Patagonians. The Falkland Islands. Industries. Paraguay. Maté. The capital. Uruguay. Capital.

GENERAL REVIEW.

Name the three natural divisions of North America. Define each. What are the great rivers? Describe vegetation. Commercial advantages. Name political divisions.

Give the natural divisions of the United States. Products and advantages of the Atlantic Slope. Of the Mississippi Valley. Of Pacific Highland and Slope. How many States and Territories are there? What are the departments of the Government of the United States? Describe each. Define State government. What are the leading agricultural productions of the United States? What of its domestic commerce? Transportation routes? Foreign commerce? Exports? Imports?

Name the New England States, with capitals. Resources. Industries. In what does Maine excel? New Hampshire? Vermont? Massachusetts? Rhode Island? Connecticut?

Name the Middle Atlantic States, with capitals. In what does this section surpass every other portion of the country? In what does New York rank first among the States? For what is New Jersey noted? Why? Of what three articles is Pennsylvania the largest producer? For what is Delaware famed? Maryland? Chesapeake Bay? What does the District of Columbia contain? What are the chief productions of Virginia? Of West Virginia?

Name the Southern States. Capitals. What are the natural divisions of Tennessee? Products of each? What are the agricultural productions of South Carolina? Its most valuable mineral? For what is Georgia conspicuous? Florida? Alabama and Mississippi? Louisiana? Arkansas? In what does Texas surpass all other States?

Name the Central States. The capitals. Chief cities. What portion of the country do these States occupy? What is their most striking feature? What may this region be called? For what is Kentucky noted? Chief industries of Ohio? Indiana? In what does Illinois rank high

among the States? What are the leading products of Michigan? Of Wisconsin? Minnesota? North and South Dakota? Missouri? Iowa? Kansas? Nebraska?

What are the resources of the Rocky Mountain Region? Chief industry of the Plateau Region? Name mineral and agricultural products of California. What are the resources and industries of Oregon? Of Washington? Alaska?

What are the resources of Canada? Industries? Products of Ontario? What can you say of the inhabitants of Quebec? Industries of New Brunswick? Exports of Nova Scotia? Manitoba? British Columbia? Newfoundland? For what is Labrador visited? What is exported from Greenland and Iceland?

Describe the climate and productions of Mexico. Of Central America. What are the exports of the West Indies? Of Trinidad? Turk's Islands? The Bermudas?

Name the four natural divisions of South America. Describe the pampas. Selvas. Llanos. The Amazon. La Plata. Orinoco. What can you say of the temperature? Moisture? Effect of Andes? Minerals? Productions? Inhabitants?

What is the great product of Brazil? Other exports? What is said of rainfall in the Guianas? Why was Venezuela so called? Name productions.

Name the Andean States. Describe surface. What part of the United States do they resemble in mineral wealth? How is transportation carried on? For what is Ecuador noted? What are its productions and exports? Peru? What portion of Peru is rainless? What are the productions? Exports of Bolivia? What does Chile produce? Name the La Plata States. Describe their great industries. What of climate? Exports? With what countries do they trade?

EUROPE.

LV. PHYSICAL FEATURES.

1. Excepting Australia, Europe is the **smallest** of the continents, and lies chiefly in the Temperate Zone. It is deeply indented by arms of the sea, and has therefore great facilities for commerce.

The **peninsulas** of Greece, Italy, and Spain and Portugal project from its southern edge, and the Scandinavian peninsula from the northern.

Europe and Asia really form one great body of land which is sometimes called **Eurasia**.

2. **Surface**.—Europe consists of a mountain region in the south and a great central plain, bordered on the east and north-west by mountains. The northwestern coast is slowly sinking. The North and Baltic Seas and the English channel were once part of the central plain.

Mountain Ranges.—The principal ranges are The Pyrenees, The Alps, The Balkans, The Carpathians, and The Caucasus, which extend across Southern Europe eastward into Asia. The low



The low mountains of the north in Scotland. Loch Lomond, a glacial lake.

MAP STUDIES.—What ocean on the north of Europe? On the west? What great sea on the south? How is the Mediterranean connected with the Atlantic? What two seas form parts of the southeastern boundary of Europe? How do you pass by water from the Mediterranean into the Black Sea? Where is the Strait of Messina? The Adriatic Sea? The Bay of Biscay? What sea is north of the Atlantic Plain? What sea separates the Scandinavian Peninsula from the Great Plain? What three gulfs connected with the Baltic? What sea indents the Arctic coast of Europe? Where is Cape Clear? Cape Matapan? North Cape?

Name the great northern peninsula of Europe. What one on the extreme southwest? Southwest of the Adriatic? What does it resemble in form? What peninsula east of the Adriatic? Between the Baltic and the North Sea? **Surface**.—What portion of Europe is occupied by the Great Low Plain? Where is the Atlantic Plain? Where are the Steppes? The Black Lands? Where is the lowest portion of the continent? What mountains border the Low Plain on the northeast? What plateau on the northwest? What two ranges in this plateau? What mountains between the Caspian and the Black Sea? What mountains on the southwest of the plain? Where are the Valdai Hills? Where is High Europe? What plateau forms the southwest extremity?

What mountain chain on the northern border of this plateau? In what direction do the mountain ranges of this peninsula lie? Where are the Alps? What is the general direction of this chain? What mountains are in the peninsula of Italy? What mountain chains in the plateau south of the Danube? Where is Mt. Blanc? Where do you find volcanoes? Geysers? What plain between the Danube and the Carpathians?

Rivers and Lakes.—What river forms part of the eastern boundary of Europe? What large river rises near the Valdai Hills and enters the Caspian? What river flows into the Sea of Azov? What river that drains the Black Lands enters into the Black Sea? What river drains Central Europe and enters the Black Sea? What river enters the Adriatic Sea? What river flows from the Apennines into the Mediterranean?

What river enters the Gulf of the Lion? In what two directions do the rivers of the Spanish Plateau flow? In what general direction do the rivers of the Atlantic Plain flow? Into what do the Oder and Vistula flow? What river enters the Gulf of Riga? What important one flows into the White Sea? What one into the Arctic Ocean?

Minerals.—What minerals in the mineral region of Central Europe? Among the Ural Mountains? Caucasus? Carpathians? Apennines? In Sicily? The Spanish Peninsula? British Islands? Scandinavian Peninsula? Where is amber found? Petroleum? Quicksilver? **Vegetation and Animals**.—What do you find on the shores of the Arctic Ocean? Where is the northern limit of wheat? Of the vine? Of maize? In what parts of the British Isles does wheat not mature? Where does tobacco grow? The almond? Olive? Fig? Orange and lemon? Grape? The mulberry? Currant? In what waters are found the whale? The sturgeon? The salmon? The sardine? Coral? What Peninsula? What region contains fur-bearing animals? To what region do we find the caribou?

border ranges on the northwest extend through the Scandinavian Peninsula and through Great Britain.

The **Alps** are the highest mountains wholly in Europe. They are celebrated for their snow-clad peaks, beautiful lakes, and glaciers.

The loftiest peaks are about 15,000 feet above the sea-level, and are crowned with perpetual snow.

In the high valleys of these mountains are immense masses of ice called **glaciers**, which are formed from the snow. They are always moving slowly down the mountains, and, melting at the lower end, become the sources of rivers. The most famous is the Mer de

Glace (sea of ice). These and other mountains of southern Europe are still young, and have not been worn down like the older mountains of northwestern Europe.

The **Great Plain**, or lowland, extends from the Ural Mountains westward to the Bay of Biscay, and from the Arctic Ocean southward to the Black Sea.

Russia constitutes a large portion of it. That part of it which borders on the North Sea and the Bay of Biscay may be designated the **Atlantic Plain**.

3. **Rivers**.—The rivers of Europe are much smaller than those of America.



The top of the Alps and a glacier.



The border of the Great Central Plain, near Zaandam in Holland.

The mountain ranges of Europe extend some east and west, some north and south; they therefore divide the continent into a great number of **small** river basins.

The mountains of North and South America, on the contrary, have a nearly uniform direction, and divide those continents into river basins which are **few** in number and **immense** in size.

The Danube, the Rhine, the Rhone, and the Po rise in the Alps and flow into the Black Sea, the North Sea, the Mediterranean, and the Adriatic respectively.

The principal rivers of the Great Plain have their origin in and near the **Valdai Hills**. The Volga is the longest river in Europe (2,300 miles).



The Rhine coming down through the plateaus of Germany. Across the river is the city of Coblenz. On this side is Ehrenbreitstein, the famous castle and fortress. A bridge crosses the Rhine here.

MAP STUDIES.—What countries occupy the three peninsulas in the Mediterranean? What three countries of Northern Europe are peninsular? What great country consists of islands? What are the great countries of Central Europe? What countries border on the Black Sea? The Adriatic? What are without seacoast?

Russia.—What mountains form part of the eastern boundary of Russia? The southern? What peninsula projects into the Black Sea? Where is Finland? Lapland? Where is the Gulf of Finland? Of Riga? What islands north of Russia? Where does the Volga rise? Into what does it flow? The Don? Dnieper? Dniester? Vistula? Dwina? Onega? Petchora? Where is Lake Ladoga? Lake Onega? What is the capital? Where is it? Where is Cronstadt? Where is Moscow? Warsaw? Saratov? Nizhni-Novgorod? Kazan? Archangel? Astrakhan? Odessa? Baku?

Sweden and Norway.—What peninsula do these countries occupy? Where is the Gulf of Bothnia? The Baltic Sea? The Cattegat? What islands off the coast of Norway? Where is the North Cape? The Naaze? Where are Lakes Wenner and Wetter? What is the capital of Norway? Of Sweden? Where is Hammerfest? **Portugal.**—Where is Portugal? Where is Cape St. Vincent? What are the three chief rivers? Name the capital. On what river? Where is Oporto?

Spain.—What mountains separate Spain from France? What strait separates Spain from Africa? Mountains along the northern coast? The southern coast? Name the rivers that flow into the Atlantic. Into the Mediterranean. Islands off the eastern shore. The capital. Where is Seville? Valencia? Barcelona? Saragossa? Malaga? Cadiz? Almaden? Palos? The Republic of Andorra? Gibraltar?

Italy.—What mountains on the north? Sea on the east? West? South? Where is Sicily? Sardinia? What small island between Italy and Corsica? Where is Cape Passaro? Gulf of Taranto? Gulf of Venice? Of Genoa? Where is the River Po? Tiber? What famous city on the Tiber? Where is Turin? Naples? Milan? Venice? Genoa? Florence? Palermo? What volcano near Naples? In Sicily? What volcano north of Sicily? What island south of Sicily? To what power does it belong?

Greece.—What sea on the east, west, and south? What country on the north? What islands east? What islands on the south? What large island on the south? Where is Cape Matapan? What is the capital? Where is Corinth? Piræus?

Turkey in Europe.—What countries on the north? Sea to the east? Country and sea on the south? What waters on the west? What island south of the archipelago belonging to Turkey? What is the capital of Turkey? Where? Where is Adrianople? Saloniki?

Servia, Roumania, Bulgaria, Montenegro.—Where is each of these States? Which are mountainous? Which are mostly plains? What mountain range has given a name to these states? What river separates Bulgaria and Roumania? Where is Belgrade? Bukharest? Sofia? Cetinje?

Trade Routes.—On what bodies of water would you pass in going from Liverpool to Suez on the Red Sea? From Queenstown to London? St. Petersburg to London? Odessa to Marseilles? Naples to Alexandria? Athens to Belgrade? London to Cologne? London to Marseilles? Odessa to Lyons? Hammerfest to St. Petersburg? Archangel to Hamburg? Venice to Alexandria?

How would you travel from Paris to Constantinople? From Berlin to St. Petersburg?

4. Climate.—Stretching from the heated waters of the Mediterranean up to the Arctic Ocean, Europe has every variety of climate, except that of equatorial regions.

Western Europe, from the North Cape to the Strait of Gibraltar, has a milder climate than Eastern Europe, and closely resembles that of the western coast of North America.

This is owing to the warm sea winds from the southwest, and to the influence of the great oceanic flow, which begins in the Gulf Stream and ends in the Atlantic Drift. This current is clearly perceptible at the Shetland Islands and off the coast of Norway.

In the harbor of **Hammerfest**, within the Arctic circle, ice never forms. On the other hand, the Gulf of **Finland**, in Eastern Europe, though it lies 12° of latitude farther to the south, is closed with ice every year from late in the fall till early in the summer.

The **British Isles** and **Labrador** lie between the same parallels of latitude; but, while the English winter is so mild that the pastures are green all the year, in Labrador the harbors are ice-bound, and the ground is covered with snow for nine or ten months in the year.

The climate of **Southern Europe** is tempered by the tepid waters of the Mediterranean and the hot winds from the Sahara. Its summers are long and its winters mild and short.

5. Minerals.—The mountainous portions of Europe are rich in minerals. Coal, iron, and salt lead, tin, zinc, copper, and quicksilver abound.

6. Vegetation.—Southern Europe is the land of the vine and the fig, the olive, the lemon, and the orange, and of rice and other semi-tropical grains.

In Central Europe, between the Alps and the Valdai Hills, are



The Rhone at Lyons, France.



The Danube passing through the great plains of Hungary, above Budapest. The watermills which you see are built on boats anchored in the river. Between two boats is the great water wheel which is turned by the force of the current and furnishes power to grind grain.



A castle in Bavaria, near Munich.

found the **deciduous** trees, the grains and orchard fruits and vegetables of the temperate zones.

In Northern Europe we find **forests** of pine, fir, and spruce, and the hardy grains, with the dwarfed plants, mosses, and lichens which belong to the Arctic region.

The extreme northern part of the Great Plain bordering the Arctic Ocean is, for nine or ten months, one continuous expanse of snow and ice. In the summer the ice melts and makes

swamps, lakes, and marshes. The ground, however, is never thawed deeper than three feet, and the largest plant is a willow that grows about one finger high.

7. Animals.—The domestic animals common in our own country are found in nearly all parts of Europe.

The forests abound with deer and wild boars, hares, foxes, and **fur-bearing** animals, as the sable, the marten, and mink. In the high Alps and Pyrenees are found the **chamois** and **wild goat**, and in Northern Europe the **reindeer**, which furnishes a large part of the food and clothing of the inhabitants of Lapland.

8. Contrasts with America.—Unlike America, Europe is an old country; its nations count their ages by centuries.

Its **resources** are well developed and it overflows with population. It contains about four times as many inhabitants as the United States, and more than ten times as many as the whole of South America.

In Europe, **land** is dear and **labor** abundant. In America, land is comparatively cheap and labor comparatively scarce.

Hence it is easier for a working man to make a living in America than in Europe. It is because of this that there is such a large **migration** from the Old World to the New.

To an American who visits Europe for the first time, the most striking features are the high state of improvement of the country, the

excellence of the roads, the vast extent of cultivated lands in proportion to woodlands, the number of cities and villages. At one time the kings and nobles of Europe owned all the land and lived in palaces and castles. The great masses of the people were very

poor. Many of these old palaces and castles are still standing in different parts of Europe, especially along the Rhine, in France, and in England.

9. Inhabitants.—The inhabitants of Europe, in the main, are Caucasians. They may be classified as belonging mainly to three great families, the **Teutonic**, **Latin**, and **Slavonic**.



An old castle in Sussex, England.

The **Teutonic** family includes the people of Germany, Scandinavia, and England. Russia is the home of the Slavonic branch. In the Caucasians there are other races also in European Russia. The **Latin** family includes principally the people of Spain, France, and Italy.

The Caucasian race originated in Central Asia. Certain tribes from time to time wandered to Europe and settled in different parts of that continent. Separated by mountains and other barriers, there was little communication between them. They had no common language, and in the centuries that passed, each developed a language for itself, so that these tribes became different nations. But many words, like father, mother, are nearly alike in all these languages.

Review Topics.—Compare Europe in size with the other continents. What gives it the great facilities for commerce? Principal mountain ranges. The Alps. Their position. The Great Plain. The Atlantic Plain. Compare the rivers of Europe and the New World. In what do the mountain ranges of Europe extend? Of Asia. What effect on river basins? Principal rivers of Europe. Describe the Volga. What varieties of climate has Europe? Compare the climates of Eastern and Western Europe. Hammerfest and the Gulf of Finland. Of the British Isles and Labrador. Climate of Southern Europe. What is the vegetation of Southern Europe? Northern. The animals. Contrasts with America. Inhabitants.



A palace in Venice.



Pierrefont Castle, France.

Political Divisions of Europe.	Area.	Population.
United Kingdom.....	121,391	42,780,000
England and Wales.....	58,324	33,760,000
Scotland.....	30,405	4,620,000
Ireland.....	32,360	4,390,000
Russia in Europe.....	2,095,616	106,260,000
Sweden.....	172,876	5,220,000
Norway.....	124,129	2,240,000
Spain.....	194,783	18,610,000
Portugal.....	35,490	5,420,000
Italy.....	110,550	33,210,000
Greece.....	25,014	2,640,000
Turkey.....	65,350	6,130,000
Roumania.....	50,720	5,950,000
Servia.....	18,630	2,490,000
France.....	207,054	38,960,000
German Empire.....	208,830	56,360,000
Prussia.....	134,603	34,470,000
Bavaria.....	29,282	6,170,000
Wurtemberg.....	7,528	2,160,000
Saxony.....	5,787	4,200,000
Netherlands.....	12,648	5,430,000
Belgium.....	11,373	6,980,000
Austria-Hungary.....	141,333	45,400,000
Switzerland.....	15,976	3,310,000
Denmark.....	15,388	2,460,000



ware. **Southampton, Bristol, and Hull** are important sea-ports.

Portsmouth and Chatham are among the chief naval stations. At **Oxford and Cambridge** are celebrated universities.

Glasgow is the chief manufacturing center, and the largest city in Scotland.



Clarence Dock, Liverpool. The rise and fall of the tides in the river Mersey is so great that immense stone docks have been built, into which the ships pass at high tide through gates like the gates of a canal. The gates are then closed, and the water level in the dock remains the same. Passengers are landed at a floating stage.

Edinburgh, on account of its institutions of learning and its historic past, is the most illustrious city in Scotland. It is noted for the publishing of books and maps.

Dundee is extensively engaged in the manufacture of linens, and **Paisley** in the manufacture of shawls and carpet and cotton thread.

Inverness stands at the northern terminus of the Caledonian Canal, which makes a water route from the Atlantic to the German Ocean.

Cardiff, the chief city and port of Wales, has a great coal trade.

13. Ireland, in general, is a rolling country. Much of the coast region contains mountain ranges of slight elevation.

In the southwest are the far-famed lakes of **Kilarney**.



The climate is very moist and mild, because Ireland is the first of the British Isles to catch the west winds as they come from the sea, warm and laden with moisture.

Rainfalls are frequent, especially in the southwest. The fields, even in winter, are always green, and Ireland is therefore called the "Emerald Isle."



A shipyard at Glasgow on the river Clyde, showing an immense passenger steamer nearly ready for launching.

It is the second largest in Great Britain.

It is celebrated for its cotton goods, chemicals, iron and steel steamships, and marine engines.

14. Productions.—Ireland is deficient in mineral resources. Coal is scanty, and peat is often used for fuel.

The most important crops are oats and potatoes. The latter are the chief article of food among the laboring classes. Flax is extensively grown, and the best of linen is made.



The famous vale of Avoca, in County Wicklow, Ireland, one of the most picturesque spots in Europe.

Ireland is a fine stock country. The cattle find pasture even in winter.

15. Cities.—**Dublin**, the capital and metropolis of Ireland, is a handsome, flourishing city, and manufactures chemicals and mineral waters. It is the seat of a celebrated university.

Belfast manufactures more linen goods than any other city in the world and has large shipbuilding industries.



Cork, on the river Lee, is the chief commercial city of southern Ireland.

At **Queens-town** the trans-Atlantic steamers take on and put off mail and passengers. It is the seaport of **Cork, Limerick, Waterford, and Londonderry** are other important Irish ports, having chiefly an import trade in breadstuffs.



Making linen in Belfast, Ireland. Flax is a fiber like cotton or wool, but is taken from the stalk of the plant. It was formerly cleaned by hand. Now this is done by a "hackling" machine, shown in cut 1. You can see the long row of flax fibers hanging across the front of the machine, where they are cleaned and combed smooth. They then pass to the machine shown in the second cut, where the fibers are drawn out and twisted into "cord." These cords, farther drawn out, are spun into thread, and woven into cloth by spinners and looms, very much like those used for cotton. (See page 54.) The third cut shows embroiderers at work.

16. The Isle of Man, lying in the Irish Sea, although part of the British Empire is practically independent. It has a legislature of its own, but is under a governor appointed by the king of England. The people are called Manxmen.

17. Several picturesque islands, called the **Channel Islands**, lie across the English Channel very near to France, but belong to Great Britain. The largest of these are **Jersey, Guernsey, and Alderney**. They are noted for their fine breed of cattle. You have seen cows called Jerseys, Guernseys and Alderneys.

Review Topics.—Great Britain consists of what? Describe her foreign possessions. The people. The surface. The climate. What are the chief minerals? Agricultural products? Manufactures? Describe commerce. Her carrying trade. Her navy. The government. The religion. London. Liverpool. Glasgow. Edinburgh. Manchester. Birmingham. Leeds. Sheffield. Newcastle. Nottingham. Portsmouth and Chatham. Oxford and Cambridge. Inverness. Cardiff. Describe the surface of Ireland. Climate. Productions. Dublin. Belfast. The Isle of Man. The Channel Islands.



Kief, on the Dnieper, in the heart of the Black Lands. Notice the wharf boats which rise and fall with the river. Compare with Memphis.

commerce. It is celebrated for a vast structure called the Kremlin, which includes forts, barracks, palaces, churches, and cathedral all in a group.

Warsaw is the great railroad, manufacturing, and trade center for Russian Poland. It is at the head of steam navigation on the Vistula. Lodz, not far distant, is in the iron and coal region.

St. Petersburg, Moscow, Warsaw, Lodz, and Narva are the cotton manufacturing cities of the Empire.

Odessa, on the Black Sea, is the great grain market of Russia.

Kronstadt is the port of St. Petersburg, and the principal naval station of Russia.

Kief is engaged in sugar refining and the manufacture of leather.

Riga is a great market for flax and linseed, lumber and hemp. Saratov, on the Volga, is an important grain and lumber market.

Archangel, in latitude $64\frac{1}{2}^{\circ}$ north, is the shipping port of northern Russia. It has an export trade in grain and lumber through the Arctic Ocean.

Astrakhan is an island city on the Volga River. It is the center of the fisheries in the Caspian Sea and the Volga.

9. Sweden and Norway.—These two countries were united under one king in 1814, but became again separate kingdoms in 1905.

They occupy a mountainous peninsula, called Scandinavia.

The surface of Norway is rugged, and the rays of the sun strike feebly into its deep glens, so that the cultivation of the soil is not very remunerative. Sweden, however, raises large crops of grain, and affords pasture for millions of cattle and sheep.

In the northern part of Norway, during several weeks in summer, the sun does not set at all, and travelers often go to the North Cape to see the midnight sun.

10. The chief industries are connected with the forests,

which are very extensive and furnish timber for the shipbuilding industries of the countries of northern Europe; with the mines, which supply the celebrated Swedish iron; and with the sea-fisheries of the Lofoden Isles, which furnish large supplies of fish for Europe.

The chief exports of Sweden are timber, wood pulp, iron, live-stock, butter, and matches; those of Norway are lumber, fish, and butter.

The United States buys iron, wood pulp, and fish of these countries, and sells them raw cotton, kerosene, flour, and farm tools.

The Swedes and Norwegians are Lutherans in religion. They belong, therefore, to Protestant Europe. Education has received great attention. Public instruction is free, excellent, and compulsory.



One of the fiords or bays which are very numerous along the coast of Norway. These are formed by the sinking of the coast, which allows the waters of the ocean to flow up the narrow valleys.

11. Cities.—Stockholm, the picturesque capital of Sweden, at the eastern extremity of Lake Malar, is the chief city. It is situated in the mining and agricultural region.

Gottenborg is the second city in size and the first in commerce.

Carlsrona is the naval arsenal of Sweden.

Christiania, the capital of Norway, has a large trade in lumber.

Bergen is chiefly engaged in the Lofoden fishery.

Hammerfest, the most northerly town of Europe, has a population of 1,500, who, even in the winter months, are busily engaged in fishing.

12. Lapland, a region of Sweden, Norway, and Russia, lying within the Arctic circle, is inhabited by the Lapps, of whom there are about 14,000 in Sweden and Norway.



Packing fish in Norway.
[Copyright, Am. Stereo. Co.]

The reindeer is

the chief source of wealth, supplying the people with most of the articles of food and clothing that they use.

The Lapps, Finns, Eskimos, and tribes of northern Liberia, all belong to the same branch of the Mongolian race as the American Indians. They probably form the oldest branch of this race.

Review Topics.—Size and population of Russia. What three nations together control one-half of the earth? What part of the population? Describe surface of Russia. Rivers. Climate. Mineral resources. Manufactures. Black lands. Agriculture. Steppes. Pursuits. People. Government. St. Petersburg. Moscow. Warsaw. Odessa. Kronstadt. Kiel. Riga. Archangel. Astrakhan. What change has occurred recently in the government of Sweden and Norway? Describe their position. Surface. Chief industries. Exports. Religion. Education. Capital of each. Other cities. Hammerfest. Situation of Lapland. Its chief source of wealth.

Northern Italy consists chiefly of a vast plain; the rest of the peninsula is traversed throughout its length by the Apennines as a sort of a backbone. Its lakes are extremely picturesque.

Southern and insular Italy contains the celebrated volcanoes of Vesuvius, Etna, and Stromboli.

Italy is connected with Central Europe by fine roads through the mountain passes, and by railroads which go through **tunnels**. The most famous passes are the great St. Bernard, the St. Gothard, the Mt. Cenis, and the Simplon. Under the three latter are railroad tunnels. Without these roads Italy could not carry on its large trade with Northern Europe.

11. Productions and Pursuits.—Wheat, corn, rice, grapes, olives, oranges, lemons, and figs are extensively grown.

Lombardy, as the valley of the Po is often called, is well watered, and its meadows may be mowed six times in a year. It is famed for the produce of its dairies, and the extent of its rice fields and mulberry groves. The mulberry leaf is the food of the silkworm. Italy produces more raw silk than any other country in Europe. The yield is not far from ten million pounds per annum.

The sulphur of Sicily, the marble of Carrara, iron, and borax are the principal mineral productions.

The chief occupation of the people is agriculture. northern Italy is also largely engaged in manufactures.



The harbor of Genoa.

The fisheries, including those of sponges and coral, employ as many as 20,000 vessels and boats, and 64,000 men.

The principal exports are raw silks and velvets, olive oil, wine, and fruits, sulphur, marble, and macaroni. Leading imports are grain, raw cotton, coal, lumber, and wool.

Italy sells to the United States raw silk, fruits and nuts, sulphur and olive oil, and buys from us tobacco, lumber, and kerosene.

12. Government.—The government is a constitutional monarchy. The established religion is the Roman Catholic; others, however, are tolerated. Public education is compulsory.

13. Cities.—**Rome** is the capital of Italy, and the residence of the Pope, who is the head of the Roman Catholic Church.

Its ruins, its churches, its art galleries and museums, its traditions and associations, make it the most famous city in the world. It is continually crowded with students and tourists.



View on the river Tiber at Rome. St. Peter's in the distance.



A bird's-eye view of Venice, showing the Alps in the distance and the city built on the islands of the Adriatic. The Grand Canal passes through the city, and many other canals which serve for streets run in every direction.

Naples is the largest city of Italy. It is noted for its beautiful bay, and for its manufactures of silk.

Near it stood the cities of Herculaneum and Pompeii (see page 10). Great quantities of coral are obtained in the sea near Naples, and are manufactured into jewelry in the city.

Venice occupies seventy-two small islands, connected by bridges. Canals take the place of streets. They are navigated in boats called gondolas.

Milan, the chief city of Lombardy, is the center of the silk trade, and noted for its manufactures and its beautiful cathedral built of white marble.



Making macaroni in the streets of Naples.

Turin is celebrated for its beautiful situation and appearance, its museum and cathedral, and its manufacture of cotton, linen, and silk.

Florence, one of the most beautiful and healthful cities of Italy, is rich in its works of art. Nearby is **Fiesole** (*fe-ay-so-lay*), where Galileo used his telescope. The great sculptor Michael Angelo lived here.

Palermo, the largest city on the island of Sicily, is a great fruit market.

Genoa, famous as the birthplace of Columbus, is the leading seaport of Italy. It manufactures the finest of silks and velvets.

14. San Marino is a picturesque little republic in Italy, on the spurs of the Apennine Mountains. It covers only about thirty-two square miles of land, and only about 8,000 people live there.



San Remo, a noted health-resort near Nice.

It is the smallest republic in the world, and was independent long before Columbus discovered America.

Review Topics.—How are Spain, Portugal, and Italy alike? The Spanish Peninsula. Inhabitants. Government. Religion. Productions. Exports. What is cork? Chief cities. The Alhambra. Gibraltar. Andorra. Portugal. Its products and exports. Cork. Cities. For what is Italy famous? It comprises what? Northern Italy. The Apennines. Volcanoes. Alpine passes. Agricultural products. Lombardy. Raw silk. Minerals. Chief occupation. Manufactures. Fisheries. Exports. Government. Religion. What is said of Rome? Naples? Venice? Other cities? San Marino?

LIX. THE BALKAN PENINSULA.

The Balkan States.—This name is frequently given to the states which occupy the Balkan Peninsula. They are eight in number, and with the exception of Bosnia and Herzegovina are practically independent.

1. **Greece** occupies the southern extremity of this peninsula. About one-sixth of its area consists of islands which lie off the coast and stretch away in groups and chains to the shores of Asia. The mainland is nearly cut in two by arms of the sea.

The **Isthmus of Corinth**, which joins the two parts, is crossed by a ship canal, and vessels bound for the Black Sea are thus saved the long and stormy voyage around the southern end of Greece.

The **surface** consists of rugged mountains and valleys affording beautiful scenery. The skies are clear and the climate mild; but as there is little rain except in winter, there are no navigable streams, and farming is unsuccessful without irrigation.

The **industries** are chiefly agricultural and commercial. As in Italy, grapes, figs, and olives are extensively cultivated, but by far the most important product is the **currant** (a species of small grape), which is grown all along the shores of the Morea. We get also from Greece olive oil, sponges, marble, and licorice. We sell to Greece cotton, kerosene, and machinery.

Greek merchants and sailors carry on a large part of the commerce of the **Levant**, as the countries bordering on the eastern part of the Mediterranean are called.

Greece suffered under Turkish misrule for many generations, but in 1828 it became independent. It is now a kingdom. Roads, rail-



Shepherd in southern Greece.



Plowing on the plains of Thessaly in northern Greece.



Ship passing through the canal cut through the isthmus at Corinth.



In Athens, showing the Acropolis and the ruins of the Parthenon. On the right are the ruins of the Temple of Jupiter Olympus. The residences are all modern.

telegraphs are being constructed, and the brigandage which long disgraced the country is a thing of the past.

2. **Cities.**—Athens is the capital of Greece. It is unrivaled for the fame of its ancient philosophers, poets, painters, and orators.

Corinth was in ancient times famed for its wealth. **Piræus** is the port of Athens and is next in size to it.

3. **Turkey in Europe.**—The Turkish or Ottoman Empire lies partly in Eu-



Ruins of temple at Olympia.

rope, partly in Africa, and partly in Asia.

It includes also **Rhodes**, and other islands in the Eastern Mediterranean.

Turkey in Europe is semi-peninsular. It has

a sea on the east and on the west, and another on the south. This modifies the climate. Grapes, figs, and olives flourish.

Much of Turkey is mountainous. Among its elevations is **Olympus**, the fabled home of the gods of ancient Greece.

The **natural resources** are great. Turkey is rich in minerals, forests, fisheries, and farming lands.

A bad government, however, depresses all its industrial pursuits.

The chief **exports** are silk and wool, carpets, grain, olive oil, tobacco, and valonia (acorn-cups for tanning).

Turkey imports from the United States meats, cotton, steel, and leather.

4. **The Inhabitants** of European Turkey are of several different nationalities. Many of them are Christians and Jews.

The Turks are the governing race. They are Mongolians, and have dark complexions. The prevailing **religion** is the Mohammedan.

5. **The Government** of Turkey is styled the Sublime Porte, from the gate (*porte*) of the Sultan's palace, where justice was formerly administered. The sovereign is called the Sultan.

The **Principality of Bulgaria** is ruled by a Christian prince elected by the people. It pays tribute to Turkey. **Sofia** is the capital.

It is a fine agricultural region, exporting largely grain and stock. Education is free, and to some extent compulsory.

The island of **Crete** has its own government, but still is a part of the Turkish Empire.

6. **Cities.**—Constantinople, the capital of the Turkish Empire, is beautifully situated on the Bosphorus, the waterway between the Black Sea and the Mediterranean. At this point the

LX. FRANCE.

1. **France** is only a little larger than Georgia, Alabama, Mississippi and Tennessee together, but its population is about half that of the United States.

The Great Plain extends across northern and western France to the Bay of Biscay, broken by highlands in Normandy and Brittany. Southeast of this is the Central Plateau, and beyond the mountain region of Southern Europe. Ranges of the Alps, including Mt. Blanc, the highest peak, are in France.

The **Rhone**, the **Seine**, the **Loire**, and **Garonne** are the principal rivers. With the canals connecting them they form the chief means of transportation.



winds from the Atlantic and the Mediterranean modify the temperature.

3. **Productions.**—In Southern France the vine, the olive, the orange, the pomegranate, the fig, and the silkworm all thrive. Sheep are raised in large numbers.

Central France is the wine and maize region.

The districts of Champagne and Burgundy, and the valleys of the Garonne and Dordogne, constitute the greatest wine-producing region in the world.

In Northern France the chief products are grain, orchard fruits, and root crops.

The beet root is extensively cultivated for making sugar.

France grows more than 300 million bushels of wheat a year, yet she must import a considerable amount. In the northwestern part



In the mountains of southern France, showing a graded public road.

dairying forms an important occupation, and cheese and butter are exported. Near the Belgium border and in the eastern mountains coal and iron are extensively mined. Near by are great manufacturing cities.

2. **Climate.**—

The latitude of France corresponds nearly to that of Maine, but its climate is far milder. The



Wine making in France. A vineyard in Champagne, near Rheims, showing how the grapes are gathered. Above, the grapes are being brought to the wine presses, and below is a cellar showing the large vats and casks in which the wine is stored.



On the plain, southwest France, showing the river Garonne, a railroad, and a canal which is carried across both by an aqueduct bridge.

4. **Occupations.**—The people are unsurpassed for thrift and industry. They are largely engaged in agriculture, manufacturing, mining, and fishing.

Silk culture is extensively carried on. The value of the cocoons annually produced is about \$15,000,000.

France has a high rank in manufactures, and excels in silks, velvets, and woollens, perfumes, jewelry, ladies' dresses, and millinery.

The French artisans surpass all others in the designing of patterns, and in the arrangement of colors.

The **sardine** fisheries of the Mediterranean and west coasts, the oyster fisheries, and the cod fisheries of the Atlantic and the Banks of Newfoundland are very important.

In foreign and domestic commerce France is one of the leading countries of Europe. She imports from the United States, cotton, petroleum, meat, and grain in

enormous quantities. France buys more goods from the United States than from any other country except Great Britain, and sells to us an amount of her manufactures about equal in value to her imports from this country.

More than 100 canals unite the various rivers. Railways extend from Paris to all parts of France and the continent. Steamers sail to all the principal ports of the world.

Silks, woolen and cotton goods, wines, jewelry, millinery, gloves, and ladies' clothing are the chief exports.

5. **Government and Religion.**—France is a Republic. The people enjoy religious freedom. The majority are Roman Catholics. Public education is free and compulsory.

The French are descendants of the Celts and of the Franks, a German tribe who conquered them.

In Brittany are found the Bretons, who are of the Celtic race.

6. **Cities.**—Paris is the most splendid city and one of the most influential capitals in the world. The French language is the one in which the diplomats of Europe generally hold intercourse.



LXI. THE GERMAN EMPIRE.



The German plateau.—The valley of the river Stein at Munster.

1. The German Empire is a **confederation** including the four kingdoms of Prussia, Saxony, Bavaria, and Württemberg, together with six Grand Duchies, five Duchies, seven Principalities, three Free Cities, and one Imperial Province. Prussia is the largest and most populous of the German States.

2. **Area.**—The German Empire is a little larger than France, but it is much more densely peopled. Saxony is the most densely populated country in the world.

3. **Surface.**—North Germany and all east Germany occupy a portion of the great plain of Europe. South of this plain is the central plateau, which, in the western half of the empire, extends to the Alps. It is a part of the same worn-down mountain region that borders the plain in France, and ward through this plateau, and low mountain ranges rise above it.



Making Dresden china at Meissen.
1. Molding dishes from clay.



2. The clay pieces are placed in ovens where the great heat changes the clay into china.

extends east-
Austria. Riv-
valleys in

The **Rhine** is the most noted of these rivers. It is famous for its romantic scenery. **Canals** connect it with the Danube, the Seine, and the Rhone. The Elbe, Weser, the Oder and Vistula are all navigable and are connected by canals.

4. **Products.**—Coal, iron, zinc, silver, lead, copper, and salt are found throughout the plateau region, and this explains why the Germans have named the mountains of Saxony the Ertzgebirge, or "ore mountains."

In the northern part of the plain **amber** is mined, but it is not a mineral. It is the resin of a kind of pine tree buried ages ago and thus hardened. It is washed up along the shores of the Baltic. In ancient times amber was highly prized. It is now used in making beads, jewelry, and mouthpieces for pipes.

Mineral springs also abound. Baden-Baden, Aix-la-Chapelle, and Wiesbaden are famous watering places.

The **agricultural products** are varied. The grains and sugar-beet are raised in great abundance; flax grows in all parts of the empire; tobacco and grapes flourish in the warm river valleys.

Forests cover one-fourth of the country. They are under government care.

The mountains of Germany are covered with forests, and this is shown by the names which the Germans have often given their mountains. The Black Forest (German, *Schwarzwald*), east of the Rhine, which is so famous in German stories, is the name of a mountain nearly 5,000 feet high.

The manufactured products include all articles that a country needs, and Germany ranks third among manufacturing nations.

The woolens of Saxony, the Rhine wines of Prussia, the beer of Dresden, the dolls of Sonneberg, the toys of Nuremberg, the Krupp guns and steel armor of Essen are famous all over the world.

More than twice as much sugar is manufactured from beets in Germany as is made from cane in Cuba, and in this industry Germany ranks first among the nations.

5. **Occupations.**—Eight millions of the population are engaged in tilling the soil. Manufacturing, wool-growing, mining are also leading pursuits.

To promote
special fairs
of Leipzig



3. The china is next painted and decorated, and again placed in the oven and heated until the coating which has been placed on it becomes enamel.

Her imports are mainly raw materials and food products. Find out from statistical tables III and IV what the trade she has with the United States.

Transportation.—Steamship lines connect the ports of Germany with all parts of the world, and railroads connect all the important cities with one another and with the leading cities of Europe.

6. **Government.**—The general government of Germany is a limited monarchy. Each State regulates its own local affairs. Representatives are sent from each State to the **Bundesrath**, to the **Reichstag**, which are the Upper and Lower Houses of the German Parliament. The king of Prussia is also the emperor of Germany.

History.—The present German Empire was established in 1871 through the influence of Prince Bismarck, and William, king of Prussia, was the first emperor.

The German people are descendants of Caucasian tribes that are thought to have come

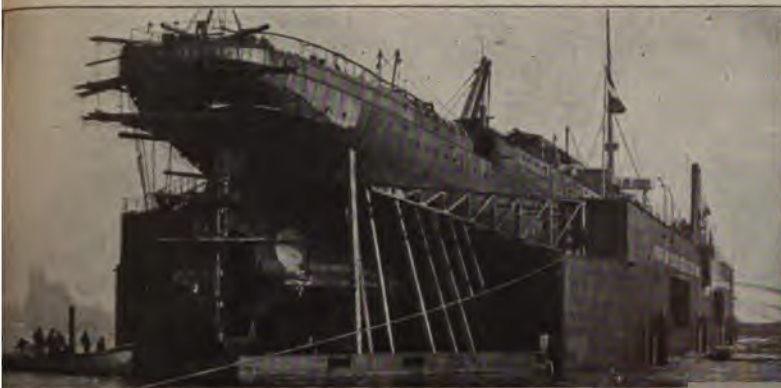


Extracting beet sugar. The beets are sliced and pressed to remove the juice. These are connected and warm water is forced through them. The water dissolves the sugar out of the beets and comes out as a syrup which is then evaporated to produce sugar. Such an arrangement for extracting the juice is called a diffusion battery.

trade, great com-
are held. T
are the most fan

Trade.—Germany has a large and rapidly growing commerce with all parts of the world. In value this trade is next to that of the United Kingdom. Her great exports are iron and steel goods, cottons, wool, and silks, beet sugar, machinery, clothing, hides, leather, and chemicals. Her imports are mainly raw materials and food products. Find out from statistical tables III and IV what the trade she has with the United States.

from Asia and settled around the Baltic Sea and in the Scandinavian peninsula. They resisted the Roman Empire, and after its fall different tribes of the race conquered Italy, Spain, France, and England, all of which had been parts of the Roman Empire. Karl the Great, whom the



An ocean steamship in dry dock at the Vulcan yards, Stettin.

French called Charlemagne, established an empire which fell to pieces after his death. It was re-established a hundred years later and lasted until it was broken up by Napoleon. It was a loose confederation of states and never closely united like the German Empire of to-day.

7. The People.—The Germans are thrifty, ingenious, and intelligent. We are indebted to them for many great inventions, and for scholarly works on the ancient languages, on chemistry, and philosophy. They are noted for their love of music, and some of the greatest composers have been Germans.

The Schools and the Army.—Germany owes her high rank and her influence among the nations to her public schools and her army. Every child must go to school and every man must serve in the army. This system was adopted many years ago, and to-day the German public schools and the universities are famous, and the army of the empire is one of the best in the world.

8. The Free Cities, Hamburg, Bremen, and Lübeck, are republics, although a part of the empire. They are extensively engaged in commerce. Hamburg, on the Elbe, is the chief seaport of Germany, and the first commercial city on the continent. It has steamship lines to every part of the world.

Hamburg's population has more than doubled in the last few years; its growth is due to the development of the manufactures and industrial interest of Germany. Bremen, on the Weser, ranks second as a seaport. Its harbor is Bremerhaven.

9. Cities.—Berlin, the capital of the empire and of the kingdom of Prussia, is one of the largest and finest cities of Europe. It is celebrated for its university and public buildings.



Hamburg, Germany.



"Unter den Linden," a street in Berlin.

Dresden, the capital of Saxony, is famous for its art gallery and libraries and its pottery.

The Dresden china is made at **Meissen**. **Chemnitz**, nearby, manufactures cotton and woollens, hosiery and knit goods.

Munich, the capital of Bavaria, is renowned for its literary institutions and galleries of art. **Nuremberg** is the market for hops and toys.

Breslau is the great wool and linen market of the empire, and the center of an extensive trade.

Leipsic and **Stuttgart**, the capital of Wurtemberg, are famed for their printing establishments, and Leipsic for the number and cheapness of its publications and for its great university.

Cologne, famous for its cathedral, and its wine and perfumery, is the most populous city of Prussia on the Rhine. **Ehrenbreitstein** is one of the strongest Prussian citadels.

From **Königsberg** and **Dantzic** large quantities of Russian grain are shipped. **Stettin** is an important seaport, and has the largest shipyards in Germany.

Frankfort-on-the-Main is a great financial center, and depot of inland trade. **Strassburg** is celebrated for its trade, its fortress, and its cathedral, which contains a wonderful clock. Most of our dolls come from **Sonneberg**.

The colonial possessions of Germany comprise certain portions of the eastern and western coasts of Africa, a part of New Guinea called Kaiser Wilhelm's Land, the Bismarck Archipelago, the Marshall and the Caroline Islands, and part of the Solomon and part of the Ladrone Islands in Oceania.



Public square in the old city of Nuremberg.

Review Topics.—What does the German Empire include? Surface of Germany. Mineral resources. Agricultural. Manufactures. Occupations. Government. Who is emperor of Germany? The people. Schools. Name the free cities. Describe Hamburg. What of Berlin? Dresden? Munich? Breslau? Leipsic? Cologne? Ehrenbreitstein? Königsberg and Dantzic? Stettin? Frankfort? Strassburg? Colonial possessions?

LXII. NETHERLANDS, BELGIUM, AND DENMARK.



Delft, showing the sea wall, the canal, and the water beyond. The buildings are oil refineries.

1. The Netherlands.—The Netherlands, also called Holland, is a low and flat country intersected with canals which drain the land and serve as roads. One-third of it has literally been reclaimed from the sea, the waters of which are being kept out by means of an embankment like the levees on the Mississippi river.

The people themselves call their country "Nederlanden," which means low countries. We call it "Holland;" but they apply this name only to those parts below the sea level, the word Holland in their language meaning hollow country.

The country lies in the delta of the Rhine, and the higher parts were built up by deposits from that river, which here enters the sea through several different



Cheese making in Holland. 1. The interior of a dairy.

channels. These are connected with the canals so that one can go by boats all over Holland. Railroads have been built, but the canals are still used by the people in going to and from market.

The Dutch are a sober, provident, and thrifty people. The chief industries are agriculture, commerce, and manufactures.

The country is a sort of dairy farm, from which England obtains supplies of meat, butter, and cheese. It is also famed for its linen.

The Dutch are fine sailors, and are extensively engaged in sea fisheries and commerce.

The herring and oyster fisheries in the North Sea are a source of great wealth. The Dutch herrings are known all over the world.

The government is a constitutional monarchy. The States-General is the legislative body. It corresponds to our Congress. The people are mostly Protestants, but all religions are tolerated, and Protestants, Roman Catholics, and Jews alike receive aid from the public funds.

2. Cities.—The Hague is the seat of government. It is famed for its museum.

Amsterdam, on the Zuider Zee, is the largest and most important city. Its diamond polishers are the most celebrated in the world.

Rotterdam is next to Amsterdam in size. It is the chief port of the country and is one of the important seaports of the world. A ship canal connects it with the sea. Utrecht, Haarlem, and Leyden are important towns. Edam and Alkmaar are noted for their cheese.

Delft manufactures fine pottery, and is a great cheese and butter market.

Holland has no coal, iron, or other metals. What effect does this have on her industries? Building materials and timber are also lacking.

Brick, tile, and earthenware are made in abundance. Butter, cheese, meat, and oleo-margarine are leading exports. Besides jewelry and



3. The cheese market at Alkmaar.

diamonds, we buy from Holland tobacco, tin, fish, hides, and cheese. She obtains the tobacco and tin from her colonial possessions. We sell to her flour, cotton, meats, and naval stores.

The colonial possessions of the Netherlands contain a population numbering about 30,000,000 people, or more than seven times as large as that of the mother country. They embrace many of the most

important of the East India Islands, several of the West Indies, and Dutch Guiana. The most valuable of all is Java, so famed for its coffee. The little islands of Banka and Billiton, in the East Indies, supply most of the best tin in the world.

3. Luxemburg was once a part of the Netherlands, but it is now independent, by agreement between the powers of Europe. It is governed by a grand duke, though it belongs to the German



Rotterdam, showing a canal lined with boats that bring produce to market.

Zollverein, or Customs Union. The people generally speak German. It is on the plateau which is rich in iron ore, and mining is an important industry. Agriculture is the occupation of most of the people. The city of Luxemburg is the capital.

LXIII. AUSTRIA AND SWITZERLAND.



Innsbruck.—The Alps in the background.

1. Austria-Hungary.—The Austro-Hungarian Monarchy consists of the Empire of Austria and the Kingdom of Hungary.

Government.—Each country has its own officers, constitution, its own parliament, and executive. But the Emperor of Austria is also the King of Hungary. One set of ministers to foreign lands represents both countries, the army and navy belong to both, and some laws for the common good are made by the two parliaments acting together.

Austria is in the mountain region of Europe, and three-fourths of the empire is mountain ranges or plateaus. Hungary consists of a great, almost treeless plain, very fertile, and enclosed by mountains. Bohemia is a high plateau enclosed by four ranges of mountains.

2. Productions and Pursuits.—Austria is rich in minerals, especially in iron and quicksilver mine

to that of Almaden the richest in Europe. The mineral waters of Carlsbad, Toplitz, and Marienbad are famous.

Agriculture is the chief industry. The leading productions are grain, wine, tobacco, the sugar-beet, and flax.

The flour and wines of Hungary are among the most noted in Europe.

The western provinces are largely engaged in manufacturing.

Bohemia is famed for its colored glassware. Its factories of linens and damask are also celebrated; much beet-sugar is manufactured.

The principal exports are sugar, grain, wool, flour, eggs, timber, cattle, coal, leather goods, glass, and wine.

Her trade is almost entirely with northern Europe. She sells half her food exports to Germany, and buys one-third of her imports there. The leading imports are cotton, coal, silk, wool, copper, and machinery. She sells to us flax, beet-sugar, glassware, beer, and hides, and buys raw cotton, copper, kerosene, and machinery. She has considerable trade with Eastern countries, supplying the leading imports of Roumania, Bulgaria, and Servia, and handling their exports.

The **Danube**, with its tributaries, extending from one end of the empire to the other, furnishes facilities for a large inland trade, while,

with the Black Sea, it forms a continuous water-route for foreign commerce. It presents the grandest river scenery in Europe.

3. Cities.—**Vienna**, on the Danube, is the capital of Austria, and the chief seat of its manufacturing industries. It is a great railroad center, and has a large trade down the Danube. It is the focus of the inland trade of the country, as **Trieste** is of the foreign trade. It is noted for its public buildings and libraries.

The workshops of Vienna send forth large quantities of hardware, porcelain, silks, jewelry, gold and silver embroidery, and musical instruments.

Prague, formerly the capital of Bohemia, contains one of the oldest universities in Europe.

It is the commercial center of Bohemia, and the second city of Austria.

It was the birthplace of John Huss and Kepler. The church in which Huss preached is still standing.

Grätz is in the iron region of Styria, and is the great center of the iron trade. **Brünn** is noted for its woolen, silk, and linen manufactures.

Pest, on Danube, and called *Ofen*, hot springs),



3. Glass vessels are pressed into shape, and then cut on a revolving stone, as shown in the picture.



2. The ends of the cylinder are cracked off, and it is cut open with a diamond from end to end. It is then placed in a furnace on a flat surface and the heat causes it to open and flatten out, forming a pane of glass.

one side of the **Buda** (sometimes the *oven*, from its on the other, are connected by a magnificent suspension bridge. They form **Buda-Pest**, the capital and chief commercial city of Hungary. Here the Hungarian

Parliament holds its meetings.

Four large fairs are held here every year. The celebrated crown of St. Stephen, the first King of Hungary, which was given to him by the Pope in the year 1000, is kept here.

Szegedin is an important grain and wine market of Hungary. **Lemberg** is noted for its fairs.

Wieliczka is famous for its salt mine, which has been worked for 600 years. It yields annually 100,000,000 pounds of salt.

Berchtesgaden is noted for its salt mine containing a beautiful lake.



Franzen's Ring, the finest street in Europe.—The parliament house and cathedral.

4. Switzerland.—The Republic of Switzerland consists of 26 separate "Cantons," or States, which are as distinct from each other as the States of our Union. The general affairs of the Republic are managed by a Congress somewhat like our own.

5. Switzerland is the most mountainous country in Europe, and is world-renowned for its magnificent scenery. It is largely bounded and traversed by the Alps. Mont Cervin, or "The Matterhorn," rivals Mont Blanc in grandeur, and the Jungfrau is exceedingly beautiful.

Many of the peaks are covered with perpetual snow, while hundreds of the valleys are filled with glaciers, or ice rivers. From certain of these the Rhine and the Rhone take their origin. Many of the waterfalls are famed for their beauty. Among the most noted are those of the Rhine, at Schaffhausen, and the Staubbach (dustfall), 1,000 feet high.

The Swiss lakes are unrivaled for beauty. Those of Geneva, Constance, and Lucerne are very celebrated.

The famous Hospice of St. Bernard is in Switzerland. It is occupied by Benedictine monks, who, before the days of railroads, sent out the dogs of St. Bernard, during snowstorms, with baskets of provisions and wine tied to their necks, to relieve travelers who were lost in the snow.



A summer hotel far up in the Alps, with a diligence waiting for tourists.

6. The Swiss are industrious and liberty-loving. The majority are Protestants. Education is free and compulsory.

Owing to the mountainous character of their country, which is better adapted to grazing than tillage, the Swiss do not produce breadstuffs enough for their own use, but import grains in large quantities and raw products for manufacture, such as cotton, silk, minerals, and coal. Waterfalls are used to generate electricity for turning mill-wheels.

Their chief industries are cattle-raising, dairy-farming, and manufacturing.

They are famed for their watches, cotton and silk goods, and musical boxes. These, with condensed milk, cheese, and toys, are the chief exports.



View of Lucerne, showing the lake, the steamers, and the summer hotels.

One-third of the people are engaged in manufacturing. Thousands of hand looms in Zurich and St. Gall turn out the richest of silks, laces, and embroideries. Swiss muslins are sold all over the world. Geneva watches and engraved and enameled jewelry command high prices. Straw braid for hats, wood carvings, leather goods, fine machinery, and scientific instruments are other characteristic products. The Swiss maintain technical schools to train workmen for their factories. Besides textiles, we import cheese, clocks and watches, aniline dyes, and rennet from Switzerland, and sell her raw cotton, iron and steel goods, and chemicals. Swiss trade is mainly with her neighbors, France, Germany, and Italy.



The Rhone glacier, under which the river begins.

Cities.—Berne is the seat of the general government of the Swiss republic.



A high valley in the Alps, showing a hut where herdsmen live during the summer, pasturing their cattle and making butter and cheese.

Geneva is famed for its manufactures, and its beautiful situation. Zurich and Basel are noted for their silks; Lucerne, for the magnificent scenery near it of mountains and lake.

Interlaken, in a high mountain valley, faces the Jungfrau, and is a favorite summer resort. St. Gall is a manufacturing town, and is famous for its hand-made embroideries and linen laces.



Interlaken, with the Jungfrau in the distance.

Altorf, in the heart of the Alps, is regarded by the people as the birthplace of Swiss liberty. It is said to have been the home of William Tell, and in the market place was placed the cap of Gessler, the Austrian governor, before which Tell refused to bow.

Review Topics.—Austria-Hungary. Government. Inhabitants. Surface. Minerals. Agriculture. Manufactures. Exports. The Danube. Cities. Switzerland. Government. Surface. Peaks and valleys. Lakes. Hospice of St. Bernard. The people. Industries. Exports. Cities.

ASIA.

LXIV. PHYSICAL FEATURES.

1. We now pass from the States of Europe to the oldest nations and the largest continent on the globe.

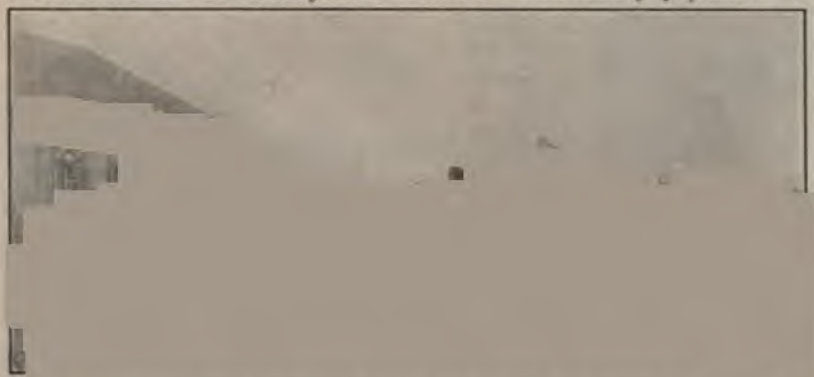
Asia is larger than the two Americas together.

It contains the highest mountains and plateaus in the world, the largest population, and the greatest variety of race, language, and religion. Its coast line is marked by many indentations.

2. **Surface.**—The continent may be divided into three sections: the **Great Northern Plain**; the **Central Region** of desert plateaus and mountains; and the **Peninsulas** of the south.

The **Great Northern Plain** extends from the Altai Mountains and the Caspian Sea to the Arctic Ocean. Its extreme northern portion, bordering on the Frozen Ocean, consists of low marshes called **Tundras**.

The **tundras** are dreary and desolate. Their scanty population is



MAP STUDIES.—What oceans on the north, south, and east of Asia? What seas on the eastern coast? What islands enclose Bering Sea? Okhotsk Sea? Sea of Japan? East China Sea? South China Sea? What great bay and sea on the south? Seas on the west and northwest? How are Asia and Africa united? What two mountain ranges partly separate Europe and Asia? What two peninsulas project from the south of Asia? What peninsula between the Persian Gulf and the Red Sea? What peninsula between Bering and Okhotsk Seas?

Surface.—Is Asia in general highland or lowland? Where is the greater part of the lowland? What is it called? What are the steppes? The tundras? Where are they? What plain east of the Caspian Sea? Northwest of the Persian Gulf? South and southwest of the Himalaya Mountains? What plain west of the Yellow Sea?

What great region stretches across the continent from the Red Sea to the Pacific? What plateau between the Red Sea and the Persian Gulf? South of the Caspian? What mountain ranges form the eastern boundary of this plateau? What plateau north of the Himalaya Mountains? What one north of Tibet?

What plateau east of the plateau of Turkestan? What desert occupies a large part of this plateau? What plateaus occupy the two southern peninsulas?

In what direction do the Asiatic mountains generally lie? What great mountain range north of the plain of the Ganges? Between what two plateaus are the Kuen Lun Mountains? What mountains bound the plateau of Turkestan on the north?

What two mountain ranges separate the plain of Turkestan from the plateau of Iran? What range north of the plateau of Mongolia? What range bounds the desert of Gobi on the east? Where are the Nanling and Peling Mountains? What mountains border the plateau of the Dekkan on the east and west? What plateau between the Mediterranean and the Black Sea? What range of mountains between the Caspian and the Black Seas? What peak west of the Caspian?

Rivers and Lakes.—What are the three great rivers of the Northern Plain? Into what ocean do they flow? In what lake does the Yenisei rise?

What are the three great rivers on the eastern slope of Asia? Where is the Mekong? The Irawadi? The Brahmaputra? The Ganges? The Menam? How many rivers unite to form the Indus?

What two rivers unite and flow into the Persian Gulf? Where is the Caspian Sea? The Aral Sea?

Minerals.—What minerals are found among the Altai Mountains? Among the Ural? What in the plateau of Turkestan? North of the Hindu Kush Mountains? On the shores of the Caspian Sea? In the Dekkan? Between the Nanling and Peling Mountains? In Indo-China? The Japan Islands?

Vegetation and Animals.—What grow on the low Arctic shores? What are the products of the plain of Turkestan? Plateau of Iran? Arabia? Asia Minor? The district east of the Khyngan Mountains? Plain of China? Uplands south of the Yangtze River? Plateau of Indo-China? Malay Peninsula? Dekkan? Plains of the Indus and Ganges?

What animals in the Great Northern Plain? Plateau of Mongolia? Tibet? Iran? Arabia? Where are the polar bear and seal found? Fur-bearing animals? What animals are found in the desert regions? Where is the elephant found? The crocodile? The tiger? The rhinoceros? What domestic animals are found in China?

composed of the nomad tribes called **Samoiedes**, who live mainly on fish and the flesh of the reindeer.

South of this belt is a vast forest region, extending from the Gulf of Finland to the Pacific shores of Asia, a distance of 4,000 miles. It is the abode of numerous fur-bearing animals.

In the west, between this wooded region and the mountains, are the **steppes**, or rolling prairies, which are gay with flowers in the spring, and green with grass in the summer.

They are the home of the roving Kirghiz (-gēz) and Tatars (*tah'-*), who here find pasturage for their herds.

The **Central Region** of desert plateaus and mountains extends from the Red Sea nearly to the Pacific Ocean. It may be divided into two portions, an eastern and a western.

The **Eastern** portion embraces Tibet (the loftiest plateau on the globe), with the desert plateaus of Turkestan and Mongolia,



View of the plateau of Anatolia and the Bosphorus, from the shore of Europe, near Constantinople.



Kirghiz steppes. These tents are their only homes, which they move from place to place when necessary to find better pasturage.



ASIA PHYSICAL MAP

SCALE OF MILES
0 500 1000

LOW
5000
50000
500000
Sq. M.

Plains — Green
Low lands — Dark-green
Plateaus — Buff
High — Dark buff

and a region of less elevation lying to the eastward and sloping gradually to the sea.

This region is bordered by the Altai Mountains on the north, and the Himalayas on the south, and is traversed east and west by lofty mountain chains.

The **Himalayas** (*abode of snow*) are the highest mountains in the world.

Along their entire length of 1,500 miles they rise far above the line of perpetual snow. Among their many lofty peaks stands the majestic Mount Everest, more than 29,000 feet high.

These mountains present every possible feature of mountain grandeur: peak and precipice, gorge and glacier, rugged ravine and headlong waterfall. They are grander than the Alps, but not so beautiful.



On the summits of the Himalayas, the highest mountains in the world. These are young mountains, and are always covered with snow. Notice that scattered through the glacier are boulders of rock which have been broken off, and will be carried down to the valley below.



View on the lofty plateau of Tibet.

MAP STUDIES.—What empire occupies a large part of Eastern and Central Asia? What country occupies most of Northern Asia? The southeastern peninsula? What three countries border on the Persian Gulf? What two to the east of Persia? What empire off the eastern coast?

Chinese Empire.—What mountains and river on the north? What mountains on the west? The south? In what portion of the empire is China? Tibet? Turkestan? Mongolia? Manchuria? What are the principal mountain ranges in China? Large rivers? Where is Hongkong? What city north of Hongkong? At the mouth of the Yangtze river? What triple city on this river? What is the capital of the empire? On what river? What is the capital of Tibet? The chief towns in Turkestan? Chief place in Mongolia? Capital of Manchuria? Where is Korea? Its capital.

Japan.—What are the principal islands occupied by the Empire of Japan? Which is the largest? What sea and strait separate Japan from the mainland? What is the capital? What city south of Tokyo? Where is Port Arthur?

Indo-China.—What countries occupy the region? What is Siam? What European power owns Burma? Where is Cape Romania? Capital of Siam? Capital of French Indo-China?

British India.—What great mountain ranges form part of its boundary? What sea on the west? Bay on the east? What are the principal rivers of India? Where is Cape Comorin? Where is Nepal? Bhutan? Kashmir? Name the capital of India. Where is Madras? Bombay? Benares? Delhi? Surat? Where is Ceylon? What is the capital?

Afghanistan and Baluchistan.—What mountains border these countries on the east? What traverse the northern part of Afghanistan? What sea on the south? What are the capital and chief towns of Afghanistan? What is the capital of Baluchistan?

Persia.—What sea on the north? What gulfs and strait on the south? What mountains in the northern part? In the southwestern? What is the capital? Where is Ispahan? Meshed? Tabriz? What port on the Persian Gulf?

Arabia.—Notice the form of Arabia? What waters nearly surround it? What country incloses the northern portion? What state occupies the southeastern coast? What is its capital? Where is Hayel? Riad? Aden?

Turkey.—On what seas and gulf does Turkey border? What two provinces in the Arabian peninsula belong to Turkey? What noted mountain at the head of the Red Sea? What strait at the entrance of the Red Sea? Is the capital of Turkey in Asia? What is it? Where is Smyrna? What city on the Tigris? On the Mediterranean? Where is Damascus? Jerusalem? Medina? Mecca? Mocha? What comes from this port?

Asiatic Russia.—What are the two great divisions of Asiatic Russia east of the Caspian Sea? What one west? Where is Lake Balkash? Lake Baikal? Sea of Aral? Into what does the Ural flow? The Amur? The Syr Darya? Where is Tobolsk? Khiva? Kokan? Bokhara? Irkutsk? Tiflis? Omsk? Tiumen? Barnaul? Kiakhta? Where is Nova Zembla? What sea south of it? Where are the New Siberia Islands?

The western portion comprises mainly the desert plateaus of Arabia and Iran, which are separated from the great northern plain by the Hindu Kush and Elburz Mountains.

The **Peninsulas** of Asia have varied surface of tablelands and low mountains, well-watered valleys and river plains.

They are a region of great interest in the history of the world. From Arabia, Mohammedan civilization

took its origin; and the Sanskrit, or sacred tongue of India, is the oldest language of the white race.

India and Indo-China are, with China and Japan, among the most densely populated portions of the world.

3. Rivers and Lakes.—The rivers of Asia are numerous and important.

The most noteworthy are the **Hoang, Yangtze, and Amu**, which flow down the eastern slope of the continent and enter the Pacific, and the **Ganges and Indus, the Mekong, Irawadi, and Brahmaputra**, which descend the southern slope and flow into the Indian Ocean.

These rivers have built up the rich flood plains of China, Indo-China, and India, and furnish **water routes** for a vast internal commerce. The Hoang River or Yellow River has built up its flood plain with deposits of rich earth called "Loes," much like the bluff formation of the Mississippi. The Hoang winds about in its flood plains and frequently cuts a new channel for itself to the sea.



On the Mekong river in flood time.



View on the sacred river Ganges at Benares, showing bridge of boats in the distance.

The principal rivers of western Asia are the **Euphrates** and **Tigris**, which enter the Persian Gulf.

The **Ob**, **Yenesei**, and **Lena** are the chief rivers of the Northern Plain. They are frozen over for six months of the year; but during summer they are the waterways for local commerce.

The Yenesei, Ob, and Yangtze are each more than 3,000 miles in length.

Several of the rivers, like the Amazon, are subject to **bores**. Those of the Indus, the Hoogly, and the Brahmaputra are remarkable.

The plateaus and plains of Asia abound with **salt lakes**. The Caspian and Aral Seas are the largest of these.

The **Caspian** is the largest lake in the world. It is more than four times the size of Lake Superior.

The **Dead Sea**, whose surface is more than 1,300 feet below the level of the Mediterranean, is the lowest of these salt lakes.

Of the **fresh-water** lakes the largest is Lake Baikal. It is 400 miles in length, and is a valuable highway for commerce. In winter it is frozen over and becomes a highway of trade and travel.

Review Topics.—Compare Asia with the other continents in size. Physical features. Population. Its three divisions. Northern Plain. The tundras. Forest region. Steppes. The Central region. Its extent. Divisions. The eastern. The Himalayas. The western portion. The surface of the peninsulas. What makes them interesting? The chief rivers of the eastern slope of Asia; of southern slope. What two great purposes do these rivers serve? Name the rivers of western Asia; of the Northern Plain. Which are the longest rivers of Asia? How long are they? What is said of the salt lakes? The largest? What is said of the Dead Sea? Name the largest of the fresh-water lakes.



The Yangtze river cutting its way through the mountains. This river is the great commercial highway of China. It is navigable for ocean steamers 700 miles, and for smaller vessels, 1,500 miles higher. There are many dangerous rapids, and from 50 to 200 men are required to pull each boat up the stream past these rapids.

What two great purposes do these rivers serve? Name the rivers of western Asia; of the Northern Plain. Which are the longest rivers of Asia? How long are they? What is said of the salt lakes? The largest? What is said of the Dead Sea? Name the largest of the fresh-water lakes.

LXV. CLIMATE, VEGETATION, RACES.

1. Climate.—The Northern Plain receives the cold winds of the Arctic Ocean. Its winters are long and severe, and its summers short.

Central Asia, between the Altai and Himalaya Mountains, has

generally a temperate climate, with the exception of Tibet, which, owing to its elevation, is bleak, and largely uninhabitable.

The great peninsulas of the south, and the desert plateaus of Western Asia have, for the most part, a tropical or hot climate.

2. Moisture.—A glance at the physical map shows that most of Asia west of the Hala Mountains (which form the boundary between the plains of the Indus and the plateau of Iran), and south of the fortieth parallel of latitude, is poorly watered.

This region is mainly occupied by the **plateaus** of Iran and Arabia, which are enclosed by low mountains that border the coast. These mountains rob the sea breezes of their moisture, and render the interior plains generally dry and barren.

Eastward of the Hala Mountains we find the **peninsulas** of India and Indo-China. They lie



One of the outlets of the Yangtze at Shanghai. Notice the landing and native boats in the foreground. A British gunboat and one of ours are in mid stream.



The valley of the Irrawadi at Mandalay, showing palace and temples of the last king.

in the region of the southwest monsoons, which come from the sea loaded with moisture. Consequently these peninsulas are abundantly watered and exceedingly fertile.

The **Monsoons** are so named from the Arabic word for *season*. For six months, including the winter, the winds come from the interior and are dry: these are the northeast monsoons. For the other six months, which are the summer months, the winds come from the sea and are moist: these are the southwest monsoons. They bring clouds and make the rainy season. The annual rainfall of India varies from 66 inches at the mouth of the Ganges, to 500 inches among the mountains.

3. Vegetation and Animals.—Besides the difference in amount of moisture, there is also a marked contrast between the vegetation and animals found in the country east and those found in the country west of the Hala Mountains.

On the **east** we find the teak, the bamboo, ebony, and banyan trees; cinnamon and other spices; the sweet-scented sandalwood, cotton, rice, and indigo; the tea-plant and camphor tree of China, the mango and the banana.

Here also are found, in the



The banyan tree is a very remarkable tree, some of whose branches grow downward and take root, as shown in the picture.

dense forests and jungles, the largest **animals**, such as the elephant, rhinoceros, and tapir, and some of the most ferocious, such as the tiger; serpents of the most venomous kind, and birds, such as the peacock, of the most brilliant plumage.

Tibet is the home of the **yak**, or grunting ox, which loves to roam above the snow-line.

On the west the teak and banyan are replaced by the oak and the ash. The peach, the olive, the fig, and other fruit trees, with the vine, the melon, and the rose, are natives of this region, and are found also in Europe.

Among **useful animals** found here are the camel and the dromedary (called ships of the desert), horses, cows, goats, and sheep.

4. Races and Religion.—Asia is occupied mainly by



The gates of the city of Lucknow.

two great races: the Caucasian, which inhabits Western Asia and India, and the Mongolian, which is found in Eastern Asia. The Malays occupy the Malay Peninsula and neighboring islands.

The yellow hair, blue eyes and fair skin so common among the Caucasians of Europe are replaced in the Caucasians of Asia by black hair and eyes and dark complexions.



Interior of the palace of the Moguls, at Delhi.

In the valleys of western Asia the Caucasian race developed a high degree of civilization thousands of years ago. Families of this race built the great cities of Nineveh, Baalbek and Babylon, and founded the historic empires of the East. Our written history begins with them. From them we get our alphabet, our Arabic numerals, and the elements of algebra and astronomy. The Caucasians crossed the mountains into India in early times and founded empires there and built great cities which are now in ruins.

Asia has been the cradle of all the prominent **religions** of the world.

Christianity, Judaism, Buddhism, Brahmanism, and Mohammedanism all had their origin within its limits.

The last three are the prevailing forms of religion throughout Asia.

5. National Rank.—The native empires of Asia are the most populous in the world, but excepting Japan, there is not one that has risen to importance as a commercial or naval power.

6. Political Geography.—Large portions of Asia belong to Russia and Turkey. Not counting these, the countries of Asia may be divided into three groups:

I. The four native **independent** nations.

These are China, Japan, Persia, and Siam. Except Japan they are absolute monarchies. With their dependencies they embrace about one-third of the area of Asia, and nearly two-thirds of its inhabitants.

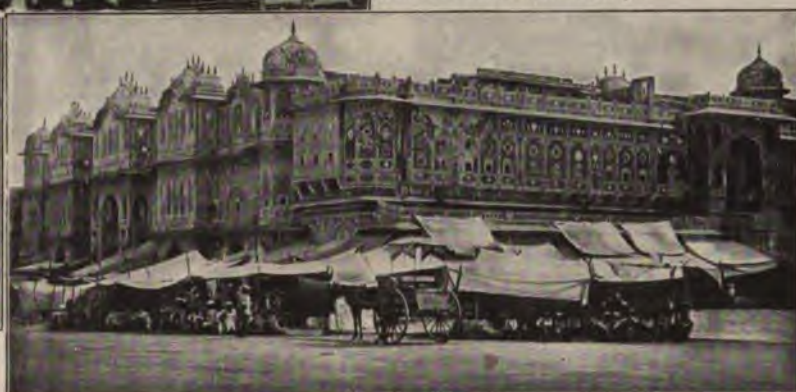


II. Countries **belonging to foreign** powers, as India, Burma, the Straits Settlements and French Indo-China.

III. Districts, such as Arabia and Afghanistan, which are occupied by **tribes** that have no responsible government.

7. Modes of Life and Civilization.—The Hindus, Chinese, and Japanese have attained a high degree of civilization.

The palaces, temples and tombs of India are of wonderful beauty.



Hindu Civilization: 1. A Brahmin temple at Madura, the sacred city of southern India, near Madras. The temple is 840 by 744 feet, and from the center of each wall rises a pyramid of nine stories, each story supported by sculptured figures. This is a picture of the principal pyramid, which is 152 feet high. 2. Brahmin college at Seypore.

Review Topics.—The climate of the Northern Plain. Of Central Asia. The peninsulas. What portion of Asia is poorly watered? Why? Why are India and Indo-China well watered? Monsoons. In what directions and for how long do they blow? What makes the southwest monsoons? Name some of the plants found east of the Hala Mountains. Some of the animals. What plants and fruits are found west of these mountains? What animals? What races occupy most of Asia? Where do the Malays live? How do Asiatics differ from Europeans in appearance? What religions have originated in Asia? Has any native Asiatic empire ever been an important commercial or naval power? How may the States of Asia be grouped? Which of the Asiatic nations are civilized?

COUNTRIES OF ASIA.	Area in Sqr. Miles.	Population.	COUNTRIES.	Area in Sqr. Miles.	Population.	COUNTRIES.	Area in Sqr. Miles.	Population.
Chinese Empire.....	4,277,170	426,047,325	Japan	147,655	44,805,937	Persia.	628,000	9,000,000
Indo- { French Indo-China. . .	306,640	20,535,400	Br. India	1,559,603	294,266,701	Asiatic Turkey . . .	{ 682,931	16,823,500
China. { Siam	200,000	5,000,000	Afghanistan. . . .	215,400	4,000,000	includ'g Arabia.		
Ceylon	25,364	3,672,888	Baluchistan	134,000	810,000	Asiatic Russia. . . .	6,564,778	22,697,469



This is a farmhouse in the great flood-plain near Shanghai.

LXVI. CHINESE EMPIRE.

1. The **Chinese Empire** occupies the central part of Eastern Asia. It includes China—with its dependencies, Manchuria, Mongolia, Tibet, and Sinkiang—and embraces an area larger than the entire continent of Europe.

The estimated **population** is about 400,000,000, or about one-fourth that of the entire globe. It is chiefly Mongolian.

2. **China.**—China consists of the great plains of the Hoang and the Yangtze rivers, together



Curling the tea leaves. One man is curling the leaves with his feet, the other is arranging them on pans to put in the sun to dry.



Assorting tea leaves after they have been dried.

with adjoining mountain regions. The **climate** is varied, and resembles that of our own country. The **soil** is fertile.

China is one of the oldest and most densely populated countries in the world.

The land is filled to overflowing with **people**. For want of dwelling space near large cities, no less than three millions of the people live in boats, which are arranged in streets on the rivers, as houses are on the land. Every available foot of land is under cultivation.

3. **Mineral Wealth.**—The Chinese coal-beds are among the most extensive in the world. Iron and salt, gold, silver, copper, quicksilver, lead, zinc, and precious stones abound. The deposits of porcelain clay are very large.

4. **Pursuits and Productions.**—Of all pursuits, agriculture is the most honored by the Chinese.

To do it homage, the Emperor, every New-Year's-Day, puts his hand to the plow and runs a furrow.

Tea is the great agricultural staple.

Tea is the leaf of an evergreen shrub that grows about five feet high. The leaves are picked by hand, rolled, and dried. The laborers are paid a few cents a day.

Cotton and the mulberry-tree are extensively cultivated. The culture of silk is as important as that of tea. Rice and millet are the chief articles of food.

The leading **manufactures** of China are silk, cotton, and porcelain.

Great use is made of the bamboo in building houses, boats, and in making furniture and household utensils. The Chinese are extensively engaged in **sea fisheries**.

Commerce.—China has a vast internal commerce.

This is carried on by rivers and canals, as most roads are impassable for carts and wheelbarrows. In the mountains donkeys and in the deserts, the camel. Railroads are being introduced. The principal cities of the Empire are now connected with one another and with the capital by telegraph. The Chinese and Russians together place Peking in telegraphic communication with Europe.

China is rapidly enlarging its **foreign intercourse**.

In former times the laws of China excluded all foreigners



Packing tea in bales at Tientsin.



Bringing tea over the mountains in western China.

from the country. For a long time the port of Canton only was open to foreign trade. Forty-three ports are now open, among them

Ichang on the Upper Yangtze, in the very heart of the Empire. There is a great **caravan** trade between China and Russia, with its rendezvous at Maimatchin. (See Trade Chart, pages 166 and 167.)

The principal **exports** are tea and raw silk. The chief imports from the United States are cotton cloth and yarn, kerosene, tobacco, and lumber. China has a large trade with Southeast Asia, from which she imports vast amounts of rice.

5. **People.**—The Chinese are industrious, patient, economical, and ingenious.

They invented gunpowder and the mariner's compass, and have stood the art of printing, paper-making, and manufacturing ware for ages. Their skill in the carving of ivory is marvelous. The most famous public works are the **Grand Canal**, 700



View of the great Chinese wall.

miles in length, and the **Great Wall**, 1,200 miles in length, from the sea to the west, 20 feet high, and so broad that six men on horseback can ride upon it.

It was designed as a work of defense against the invading

LXVII. JAPAN.



A water mill and Japanese village, with the famous volcano, Fujiyama, in the background. Between the first two buildings on the left is a water wheel which runs a mill.

1. **Japan** consists of four large islands, Hondo, Kiushu, Shikoku, and Yezo, together with the southern half of Sakhalin, and numerous smaller islands.

Its **area** and **population** are a little larger than the area and population of the British Islands.

The **coasts** are generally bold and rocky, and abound in convenient harbors.

The country is **mountainous**, and in many places volcanic. It is more subject to earthquakes than any other region.



Making raw silk in Japan. 1. The woman is feeding the silkworms with mulberry leaves.



2. After the worms are full grown they spin a cocoon about themselves; the cocoons are then plunged into boiling water to kill the worm, who would otherwise eat his way out and spoil the silk.

Fujiyama, with its majestic cone of snow, is an extinct volcano rising 14,000 feet above the sea. It was formerly an object of veneration.

Near Kiushu there is a small islet with a volcano, which, like Stromboli, in the Mediterranean, serves as a lighthouse.

2. **Mineral Resources.**—Japan is not rich in mineral resources; but copper and iron are abundant, and gold, silver, sulphur, and coal are mined. Mineral springs abound.

3. **Climate.**—The climate resembles that of our Atlantic seaboard, though it is somewhat milder, owing to the insular position of Japan.

At **Tokyo** the summer temperature ranges from 70° to 90°; in winter the snow seldom lies long.

4. **Productions.**—The principal crops are rice and tea. Rice is the chief article of food.

Among the productions are the tree from which the Japanese get the **gum** for their beautiful "Japan ware"; the **wax-tree**, from which they get a kind of wax for their candles—the manufacture of which is an important industry; and the **paper-mulberry**, from which they manufacture paper.

The chief **exports** are silk, rice, tea, camphor, copper, and cotton goods. The chief imports are iron and steel goods, machinery, flour, kerosene, and tobacco.

5. **People.**—In commerce, manufacturing, and general enterprise the Japanese are the most progressive of the Mongolian race. Since 1854 they have opened their ports to foreign trade and residents. Hundreds of steamers ply regularly between Japan and ports of our own and other countries.

In the manufacture of **porcelain** the Japanese are equal to any nation in the world; in certain kinds of metal work they excel all; their **silk** fabrics are of superior excellence; they make numerous varieties of **paper**, many of which are very beautiful. "Japan ware" is made by them alone.

They have adopted the best features of the military systems of modern nations, and have introduced post-offices, railways, and telegraphs.

6. **The Government** is a monarchy. The "Mikado" is aided by a Great Council. A constitution has been adopted.

7. **Education.**—Public schools have been established, and the education of boys is universal and compulsory. The Imperial University of Tokyo is an institution of high rank.



3. The cocoons are put in warm water to loosen the fiber, which is then reeled off into hanks.



4. Packing the hanks of raw silk into bales, some of which are brought to Paterson, N. J., to be woven. (See page 47.)

The Japanese used the art of printing long before it was invented in Europe. They have a literature of great antiquity and repute. Many Japanese students are educated in Europe and the United States.

8. **Religion.**—There is no state religion. The people are largely Buddhists. Many, however, have become Christians.

9. **Customs.**—Many curious customs prevail.

Owing to the fact that the country is so subject to earthquakes, the **dwellings** are generally of wood. They are all built according to one of three or four plans; so that, in furnishing a house, you have only to go to the upholsterer and order mats and other articles for a house of one or other of these patterns.

The Japanese have no chairs, sofas, or beds; they use their clothes for bed-covering, and sleep upon the mats on which they sit during the day.

10. **Cities.**—The cities of Japan are numerous. **Tokyo**, the



Planting rice in Japan.

LXIX. BRITISH ASIA.

1. British Asia comprises the great peninsula of India, together with Burma, Assam, the Straits Settlements, Ceylon, the Andaman and Nicobar islands, and other islands.

2. **India.**—On the northern border we find the vast range of the Himalaya Mountains.

At their southern base lie the great plains of the Indus and Ganges, one of the richest and most populous regions in the world. (See Physical Map, p. 135.)

Still farther to the south rises the plateau of the Dekkan.

3. **Productions.**—The mineral wealth of India is not large.

Iron, gold, and precious stones are, however, found in considerable abundance, and much coal is mined.

The great productions of the country are **agricultural**. They are rice, wheat, cotton, jute, silk, opium, indigo, tea, sugar, and tobacco.

Millet and rice are the chief ar-



The preparation of tea in India. A furnace in which the leaves are withered and partially dried.



Near Darjeeling, 8,000 feet above the sea. The mountains in the distance are the highest summits of the Himalayas.



A machine for curling tea.

tibles of food. Two crops of rice are raised every year.

India raises vast quantities of **cotton**, which is the principal material for clothing. The sugar crop is immense.

Opium is made from the poppy, and the cultivation of this plant is an important branch of industry. It is largely chewed and smoked by the Chinese, Japanese, and the inhabitants of the East India Islands. The entire proceeds of the tea crop are said to be insufficient to pay for the opium annually brought into China and consumed there.



Making tiles at Mysore.

Jute is used in making gunny-bags, in which many of the products of India are packed. It is largely used also in manufacturing carpets.

4. **The Commerce** of India is immense. A great maritime trade is carried on with England and China, and an im-

portant caravan traffic with central and western Asia.

Internal commerce is rapidly developing by the aid of the **railways** that connect the principal cities and seaports. The large rivers are navigated by steamers.

The country is traversed by a network of navigable and irrigating **canals**, some of which are thousands of miles in length.

The chief **exports** are cotton, rice, jute, oil-seeds, opium, tea, hides, indigo, wheat, and coffee. Cotton cloth and hardware are the largest imports.

For ages the trade of India was the richest traffic of the world. The English **East India Company**,

having grown rich and powerful through its monopoly of this trade, achieved the splendid conquest which gave to England this most valuable of her possessions.

5. **The Inhabitants** number about 290,000,000. They are generally known as Hindus, though there is great diversity of race, language, manners, and customs among them.



Interior of a tea house.



Carts at the factory being loaded with tea for Calcutta.

They were formerly noted for their skill in the manufacture of textile fabrics.

The muslins of Dacca, the brocades of Benares, the embroideries of Delhi, long rivalled the products of the finest modern machinery. The shawls of Kashmir are still unsurpassed.

More than two thousand years ago India was the seat of an **empire** of vast wealth. Its wonderful antiquities and magnificent ruins, its extraordinary poetical and religious literature, tell in eloquent language of the grandeur of the past.

European civilization is now rapidly extending over the country.

The leading **religions** are Brahmanism and Mohammedanism. About two millions of the people have become Christians.

6. **Government.**—The King of England is "Emperor of India," and rules through a governor-general.



Shipping yard at Calcutta.

LXX. AFGHANISTAN, BALUCHISTAN, PERSIA, AND ARABIA.

1. Afghanistan and Baluchistan.—Afghanistan and Baluchistan occupy the eastern portion of the Plateau of Iran, and are for the most part desert. Some of the mountain valleys are, however, well watered and fertile.



Afghan women. Notice the shawls over their heads. From these the afghan, worn by ladies, takes its name.

These valleys are inhabited by a settled population, but the country generally is peopled by warlike nomads, who raise camels, horses, goats, and sheep on the good pasture lands.

Most of Baluchistan is now under the control of Great Britain.

The chief caravan routes between India and western Asia lie through this region, which is separated from India by the Sulaiman and Hala mountains.

The two great passes through these mountains, the **Khaibar Pass** leading to Kabul, and the **Bolan** leading into Baluchistan, may be called the northwestern gates of India. The Bolan Pass is a wild gorge about fifty miles long, walled in by precipitous rocks. In 1839 a column of the British army took six days to traverse it.



Women of the working class weaving a Persian carpet.

The principal depots of the caravan trade are **Kabul**, **Herat**, **Kandahar**, and **Khelat**. Kabul, on the Kabul river, is the

capital of Afghanistan, Khelat of Baluchistan.

England and Russia are rivals for the control of the commerce of these countries. England has built railroads as far as New Chaman and Peshawar in the south, and a Russian road has nearly reached Herat.

2. Persia.—Persia occupies the western part of the Plateau of Iran.

It is a dry country, requiring for the most part artificial irrigation; but wherever there is water, the hills and valleys are clothed with waving wheat or fragrant roses, and the pastures are covered with flocks and herds.

Water is conveyed to the plains from the mountain springs or streams by long underground aqueducts called *kenats*.

The climate of Persia generally is one of great extremes. The summers are intensely hot, the winters bitterly cold. The region bordering the Caspian Sea has a comparatively mild climate.



One of the summer homes of the Shah of Persia.

3. Productions.—Silk is the most important production. The other products are cotton, tobacco, opium, drugs, wool, wine, minerals, naphtha, salt, and the turquoise.

The artisans of Persia are skilled in various branches of industry, especially in the manufacture of silks, shawls, carpets, and small arms.

The chief exports are cotton, silk and silkworm eggs, opium, carpets, dried fruits, and pearls.

In these dry countries the fruits, such as grapes, peaches, pears, apricots, nectarines, plums, cherries, figs, pomegranates, and melons—both canteloupes and watermelons—are unsurpassed.



A port in Persia on the Caspian Sea where caravans from Teheran and other Persian cities meet. Notice the packages of merchandise piled up in front of the warehouses and the Persians watching the steamer as it approaches.

4. Government.—Persia is one of the oldest monarchies in the world. The ruler is called the Shah, and is a Mohammedan.

Western civilization is finding its way into this country. Telegraphs and post-offices have been introduced.

5. Cities.—

Teheran is the capital. **Tabriz**

is an important center of caravan trade between Persia and India on the one hand and Turkey and Russia on the other.

Ispahan, once the capital, is an important center of trade.

Meshed, the holy city, manufactures carpets and shawls; **Bushire** on the Persian Gulf, has important commerce with European countries.



A Persian village.—The men and women are weaving mats.

6. Arabia.—Arabia is a great plateau. It has three natural divisions, nearly equal in size: a central mountainous region; a desert belt encircling this; a narrow coast plain.

Central Arabia contains many towns and villages. Its valleys are exceedingly productive.



Smyrna, the principal seaport of Asiatic Turkey.

Sponges are animal productions, living in water from 30 to 150 feet deep, and attached to rocks or shells. They are gathered by divers.

Smyrna is the great port of Asiatic Turkey. **Damascus**, the oldest city known, and **Bagdad**, are centers of a great caravan trade. **Beirut** is the port of Damascus.

Aleppo is a great rendezvous of caravans from Persia and India.

Brusa is an important emporium, famed for its delicate fabrics of silk.

Review Topics.—What does Asiatic Turkey include? What do these constitute? Products of the valleys. Of the river plains. Why is not Turkey prosperous? Exports. Caravan trade. Government. Inhabitants. What does Syria contain? Products of the sea. Sponges. Cities.

ASIATIC RUSSIA.

1. Asiatic Russia.—Asiatic Russia embraces all of northern Asia, and extends from the Black Sea to the Pacific Ocean.

It includes Siberia, Transcaucasia, and Russian Turkestan.

2. Siberia.—

Siberia is larger than all Europe, while its population is only a little more than that of the Netherlands.

3. Surface.—

More than half of Siberia lies in the great northern plain. That part



Siberian railway station.

bordering the Arctic Ocean is a level swamp, called the **tundras**.

The mouths of the great rivers that cross this region freeze very early every winter while the water is still flowing in their upper courses. This floods the tundras, and a little later they freeze, making a solid ice sheet over which the natives travel on sledges. In summer the ice thaws and the tundras become impassable swamps overgrown with coarse grass.

The central part is rolling and covered with forests which are a part of a great forest belt extending from the Baltic to the Pacific. The southwestern part consists of a low and dry plateau called the **steppes**. Southern and eastern Siberia lie in the mountain region of the continent.

4. Climate.—The climate in the north is intensely cold; in the central and southern sections the winters are not so cold, and the summer heat is intense.

5. Rivers.—The chief rivers are the Ob, the Yenisei, and the Lena, which cross the central plain from south to north, and the

Amur, which cuts its way through the mountains and flows into the Okhotsk Sea.

These rivers are all navigable, but their mouths being frozen over for the greater part of the year they are of no value to foreign commerce. Their upper courses, connecting canals and Lake Baikal, furnish waterways for local trade in the interior.

6. Products.—The products are small in comparison with the vast extent of the country.

The **forests** are the homes of fur-bearing animals, and their furs are an important product.

Agriculture.—The southern half of the great plain is a rich agricultural region, which has developed rapidly since the building of the railroads. Large crops of wheat, rye, and oats are produced; on the steppes, the great grazing region, are vast numbers of sheep, horses, cattle, and camels.

Minerals.—The mountain regions are rich in emeralds, rubies, gold, silver, platinum, copper, and iron. The mines, as a rule, belong to the Czar, and are worked by convicts, most of whom are sent from Russia.

The **manufactures** are not important. They include metals, woolen goods, leather, and lumber products.

7. Population.

—The population at one time consisted chiefly of exiles and convicts from Russia, government officers, and a few barbarous natives. Since the building of the



The first train on the Siberian railway.

railroads several million persons have come in from Russia.

The Kirghiz of the steppes live in tents and roam from place to place with their flocks and herds. They are ignorant but hospitable.

8. Trade.—The **exports** are furs, the products of the mines, and fossil ivory, which is found all over northern Siberia.

This **ivory** is the tusks of animals called mammoths, which became extinct before the history of man begins. They were twice as large as an elephant and were covered with wool and long hair. Not long ago the body of one of these animals was found frozen up in ice, where it had been preserved for ages. The flesh was in such good condition that a party of explorers cut it up and fed it to their dogs.

Most of the **imports** come from Russia; but we sell Siberia farming utensils and steel.

Trade Route.—An extensive trade is carried on between Pekin and



Siberian farming scene.

AFRICA.

LXXII. PHYSICAL FEATURES.

1. **Africa**, chiefly in the Torrid Zone, is noted for its deserts, its magnificent rivers, luxuriant vegetation, and barbarous races.

This continent ranks next to Asia in **size** and is joined to it by the narrow isthmus of Suez. Its long **coast line**, unlike that of Europe, has few indentations.

2. **Surface**.—Africa is a vast plateau from 1,500 to 5,000 feet high, and surrounded by a belt of low, marshy, malarious land, varying in width from a few miles to two hundred.



The Atlas mountains in Algeria.

MAP STUDIES.—What sea on the north? On the northeast? What connects these two seas? In what latitude is Africa? What parallel crosses the northern part? What cape forms the eastern extremity? The southern? The western? Where does Africa approach nearest the mainland of Europe? What strait separates it from Europe? Where is the Cape of Good Hope? Why was it so named? What large island off the eastern coast of Africa? What groups of islands northwest? What islands in the Gulf of Guinea? At the mouth of the Gulf of Aden? Off the eastern coast? Is the coast line of Africa regular or indented? What gulfs do you find on the northern coast? What bays on the eastern? On the western?

Surface.—Where are the African highlands? What is their direction? What lakes do they contain? What three great rivers have their sources in these? What mountains along the northern coast? Along the southern coast? What plateau north of the Gulf of Guinea? Where are the Kamerun Mountains? What desert region in the south? In the northeast? Where is the Sahara or Great desert? What two high mountains near the equator?

Lakes and Rivers.—Which is the longest river in Africa? Which two flow into the Atlantic? Describe the course of the Nile. Name four large lakes south of the equator? What river drains central Africa? (There are falls and rapids in its lower course around which a railroad has been built.) Where is Lake Chad? Why has it no outlet? Describe the Orange river. The Vaal. The Senegal. The Limpopo. What tributaries has the Nile? In what plateau do they rise?

Climate.—In what zones is Africa? In what wind belts? Along which coast are the highest mountains? How does this affect the climate of the interior? Explain why the northern part of Africa has little rain. Account for the Kalahari desert. What parts of Africa are in reach of the westerly winds (see wind chart, p. 166)? What of the rainfall in these parts? Why is northeastern Africa desert, while southeastern Africa has abundance of rain?

The highest **mountains** are situated eastward and westward of Victoria Nyanza. On the west is Mount Ruwenzori, about 19,000 feet high, the highest peak of several which were anciently

called the "Mountains of the Moon." On the east are the of Kenia and Kilimanjaro, more than 19,000 feet high. are the highest in Africa, and are above the snow line.

The other important ranges are the Atlas, on the north; Kamerun, on the western coast, and the Snow Mountains, on the south.

The peak of Teneriffe is a celebrated volcano on one of the Canary Islands; it is 12,182 feet high, and the winds at the top and bottom often blow in contrary directions.

3. **Deserts**.—The great I of Sahara, the Libyan and N deserts in the north, and the Kalahari Desert in the south, though barren themselves, contribute largely to the productivity of the more favored portions of the continent.

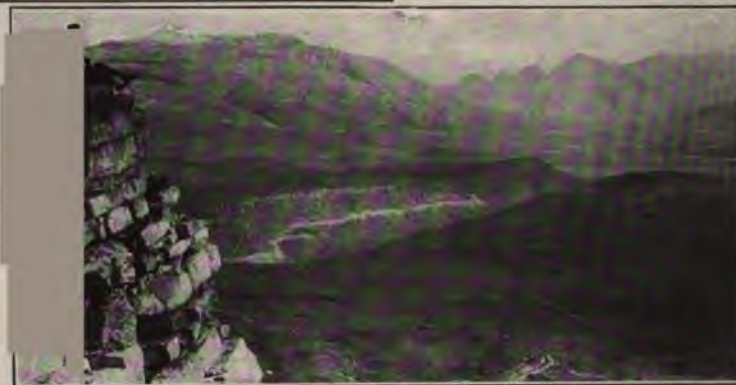
The **Atlantic slopes** and the



The Suez Canal.



The Libyan Desert near Cairo, showing the great pyramids at Ghizeh.



The South African plateau in Cape Colony.

Productions.—What tropical fruits are found in the northern part of Africa? In what parts are palm trees found? What farm products are raised in Egypt? In South Africa? In what parts do coffee and cotton flourish? Where is ivory found? What section produces oil? Sugar? Ebony? Gold? Gums? In what parts is the elephant found? What animals are common in the Sudan region? What minerals are found in the southern part? In the desert? What are the productions of Madagascar? Of the Azores and Canary Islands? Of Socotra, Mauritius and Reunion Islands? In what section is the tea found? The crocodile? The lion? Monkeys and parrots? The rhinoceros? What regions raise sheep and goats? Cattle?

of the Cape owe their fertility to these deserts. The hot sun so rarefies the air that **vapor-laden winds** are drawn in from the sea. Rising to the cool tops of the coast mountains, the vapor is condensed and yields a considerable rainfall.

4. Rivers and Lakes.—Africa is the driest of the continents. There are, however, great rivers, such as the Nile, the Niger, the Kongo, and the Zambezi. The Nile and the Kongo are the most important, and are among the longest in the world.



The River Nile.

MAP STUDIES.—What two nations control the larger part of Africa? What colonies border the Gulf of Guinea? The Red Sea? The Mediterranean? What lakes border German East Africa? What part of Africa belongs to Turkey? In which part are the most railroads? What colonies border the Indian Ocean? What state in the central part of Africa? Through what divisions does the Nile pass? The Niger? What countries are separated by the Kongo river?

Region of the Nile.—What is the source of the Nile? What possessions on the west of Egypt? On the south? What cities at the extremities of the Suez Canal? Where is Alexandria? Damietta? Cairo? Assouan? Near what circle is the first cataract of the Nile? What important city at the junction of the two Niles? How could you travel from Khartum to Cairo? From Berber to Suakin? What are the products of the upper Nile region? What cities in the Egyptian Sudan? Where is Fashoda? El Fasher? What is the capital? Describe the surface of Abyssinia. What is the capital? Locate Harar. With what seaport is it connected?

The Barbary States.—Which of these states belong to Turkey? To France? Which is independent? What mountains cross Morocco and Algeria? How do they affect the climate? Where is Tunis? What caravan routes center at Tripoli? Through what oasis do they lead? Name the capital of each Barbary State. Locate Tangier, Oram, Algieras, Constantine, Murzuk, and Mekinez.

The Sahara, Sudan, and the Kongo State.—What is the extent of the Sahara from east to west? From north to south? How does it compare in size with the United States? Name some of its oases. Which of them produce salt? What town north of the bend of the Niger? What caravan route passes through it? To what nations does the Sudan belong? What waters form part of the boundary of the Kongo State? What branches of the Kongo pass through it? Where are its highlands? What is its capital and seaport?

The Western Coast.—Name the British colonies on this coast. The French. The German. The Portuguese. Name the capital of each colony. Locate Lagos, Bathurst, Loanda, Windhoek, Libreville, Monrovia and Freetown. What are the divisions of Nigeria? What are the chief productions of the western coast?

Southern Africa.—To what nation does the greater part of it belong? What two other nations control part of it? Name the British colonies in South Africa. What is the capital of Cape Colony? Of Transvaal? Of the Orange River Colony? Where is Swakopmund? With what interior

The Kongo is the largest river in Africa, from eight to ten times broader than the Mississippi. With its tributaries it affords about thousand miles of navigable waterways.

Victoria Nyanza, Albert Nyanza, Albert Edward Nyanza, and Ganyika are among the largest lakes in the world. The first are drained by the Nile. (*Nyanza* means lake.)

5. Climate.—Africa is the hottest of all the continents. climate, however, varies in different parts.

The northern portion lies in the region of the northeast trade winds; and these, coming from the dry plateau of Arabia, are rainless and hot. Eggs may be baked in the sands of Nubia.

Central and Southern Africa are largely in the region of the southeast trades. These come from the Indian Ocean and are laden with moisture, which is condensed above the snowy mountains of equatorial Africa, and, falling as rain or snow, feeds the great lakes and rivers of the continent.

6. Vegetation.—The Equatorial regions of Africa form a belt of fertile country, marked by luxuriant tropical vegetation, similar to that of South America.

On each side of this broad belt are grass lands and prairies. Those of the Sudan on the north and on the south the coastlands of the Zambezi.

Beyond these again, both north and south, are the dry sandy regions of the Sahara and Kalahari, while the extreme



The Kongo river and Kinchassa, the principal Belgian port.



A view of the River Niger, with native boats in the foreground.

city is it connected? What is the importance of Port Nolloth? Port Salisbury. Kimberly. Maseru. Durban. Mafeking.

Eastern Coast.—What colonies border on the Indian Ocean? the Red Sea? On the Gulf of Aden? What city at the mouth of the Niger? What port on Delagoa Bay? Where is Sofala? Zomba? Mozambique? Dar-es-Salaam? Zanzibar? Juba? What French colony on the Strait of Bab-el-Mandeb? What is the capital of Madagascar?

COUNTRIES.	Area in Sq. Miles.	Population.	COUNTRIES.	Area in Sq. Miles.	Population.
Cape Colonies.....	221,311	1,327,224	Spanish Possessions.....	243,877	13,000
Other Brit. Colonies.	258,583	4,357,770	Italian Possessions.....	88,500	45,000
British Protectorates.	2,279,417	45,606,000*	Egypt.....	400,000	9,730,000
Algeria.....	184,474	4,429,421	Abyssinia.....	150,000	4,300,000
Tunis.....	51,000	1,900,000	Morocco.....	219,000	5,000,000
Other French Possessions.....	4,755,446	31,977,140*	Tripoli, etc.....	398,900	1,320,000
German Possessions..	930,580	15,200,000*	Liberia.....	35,000	2,000,000
Portuguese Possessions.....	792,040	8,697,790*	Kongo State.....	900,000	31,000,000

* Estimated.



A coconut palm and other tropical vegetation in an African forest.

northern and southern portions of the continent are regions of extraordinary productiveness.

On the Atlas range and the northern borders of the Sahara is the "land of the date," and on the highlands of

Abyssinia are extensive forests of the coffee-tree. The gigantic baobab, the acacia, oil-palm, sugar cane, coffee, tobacco, and cotton, are found from the Sahara to the Zambezi.

The date-palm supplies a large portion of the inhabitants with food.

The oil-palm yields palm oil, and the acacia produces gum-arabic.

The palm is the most useful tree in the world. It furnishes timber and fiber from which dwellings and clothing are made, as well as fruit, oil, and wine.

7. Animals.—Strange and ferocious animals are found in great number and variety in Africa.

It is the home of the elephant and rhinoceros, the lion and the leopard, the crocodile and hippopotamus, and those

strange animals, the gorilla and chimpanzee, that bear such a strong resemblance to the human form.

The ostrich buries her eggs in the sands of the deserts; the zebra and giraffe, the antelope, and the swift-footed gnu, roam over the plains.

A great plague of central and southern Africa is the tsetse fly, which resembles our common house-fly. Its bite is fatal to horses, and sometimes to cattle, though harmless to man. In all the region between Sudan and Cape Colony, bales of goods and other merchandise are transported on the heads of negro carriers. Only to a very limited extent have roads been made on which beasts of burden could be used.

8. Inhabitants.—The northern portion of the continent is inhabited by Berbers, Arabs or Moors, and Egyptians.

The Sudan and the region south of it, including the Kongo Basin, is the "land of the blacks." Some of them till the soil and raise cattle, others have skill in tempering steel and working gold, but they are generally exceedingly ignorant and degraded. They believe in witchcraft and worship idols.

South of the Zambezi river are found the Kaffirs and Hottentots, and in the Kalahari Desert the Bushmen, who live in caves like wild animals. It is said that the Bushmen cannot count beyond the number two.

9. Political Geography.—Egypt, Tripoli, and Barca pay annual tribute money to Turkey. Nearly all the rest of Africa is owned or controlled by European governments.

Morocco is governed by its own despotic sultan; Abyssinia, by its own absolute king; the Kongo State, by the King of Belgium. Liberia is independent. Regions controlled and protected by European countries are described as "spheres of influence."

Less than two million square miles of African territory, out of a total of eleven and a half million, are non-European.

Review Topics.—Location of Africa. Rank. Coast line. Surface. Highest mountain ranges. Other important ranges. Deserts. Effect on climate. How does Africa compare with the other continents in regard to moisture? What is

said of the Nile and the Kongo? Climate of northern portion. Central and Southern Africa. Vegetation in the equatorial regions. In the Sudan and the Zambezi countries. Abyssinia. Products. Date-palm. The oil-palm. The acacia. Animals



A Kaffir village.

of Africa. Inhabitants. Government. What States are independent?

LXXIII. REGION OF THE NILE.

1. Egypt.—Egypt occupies the lower part of the Nile valley. The upper valley, south of the 22d parallel, is governed jointly by England and Egypt, and is called the **Anglo-Egyptian Sudan**. This region is inhabited mainly by native Arabs.

An uprising was provoked among them in 1882, by the attempts of the Egyptians to take possession of the country. Under a leader whom they called the "Mahdi," or prophet, the Arabs routed an Egyptian army and cut off and massacred General Gordon and his men at Khartum. But the Mahdi was defeated and killed in 1898 by an army under General Kitchener, and the entire Nile valley is now under the control of England and Egypt.

2. The Nile.

—The Valley of the Nile is in a rainless region. Except in the Delta, rain rarely falls, and a cloud is seldom seen.

For more than 1,200 miles in its lower course the Nile does not receive a single tributary.



Manufacture of water-jars. Nile boats carrying them to market.



Native village in Kamerun.—The natives are dressed for Sunday.



Egyptians.

LXXIV. THE BARBARY STATES.

1. Morocco, Algeria, Tunis, Tripoli, and Barca are known as **The Barbary States**, and are so called from their early inhabitants, the Berbers. Arabs, or Moors, now live there.



On the quay at Tangier.

These states extend along the Mediterranean for 2,000 miles.

They are bordered on the south by the Desert of Sahara, and are often visited by its hot winds. Their climate, however, is generally mild and delightful; the coast region enjoys almost perpetual spring.

The products of this region are wheat, dates, olives, grapes, and other fruits.

Between the Atlas Mountains and the great desert is a region known as the **Land of Dates**. Here groves of the date-palm supply the natives with food and protect them from the sun. The inhabitants are Arabs, Moors, and Berbers, and French colonists.

Tripoli and **Morocco** have a large caravan trade across the Sahara, with the Sudan, from whence they receive ivory, gold dust, gums, and ostrich feathers.

The trade of the Barbary States with **Europe** is important. The chief exports are grain, sheep, cattle, dates, wine, olive oil, wool, and esparto grass, which last is used for making paper.

This region in ancient times supplied the armies and navies of Carthage, the rival of Rome.

2. **Morocco**.—Morocco is the largest of the Barbary States. It is an independent empire, ruled by a Sultan, who is an absolute despot.

The exports are eggs, beans, cattle, maize, gum, goatskins, almonds, and wool. English cotton goods, coffee, sugar, tea, and firearms are the chief imports.

Fez and **Morocco**, the capitals, and **Tangier** are the chief commercial cities. There is a large caravan trade with the Sudan.

3. **Algeria** and **Tunis** are the most prosperous of the Barbary States. They belong to France. Agriculture and herding are the chief occupations. There are large forests of cork-oak. There are 3,000,000 date-palms on the Sahara oases and 10,000,000 olive trees on the mountain slopes, while the number of orange, lemon, and other tropical fruit trees is increasing. Transportation is well provided for by good wagon roads and railroads to the seaports, connecting with swift steamships for the ports of

Europe. Iron and zinc are the chief metals mined. The yield of phosphate rock is second only to that of the United States.

From its gardens southern France and other parts of Europe are supplied with early fruits and vegetables.

Esparto grass grows in unlimited supply on the southern plateaus. It is sent to England and France for use in making paper, and with zinc ore and cork forms the most valuable export. Iron, hides, phosphate, flax, tobacco, grains, wine, and sheep are the other leading exports. Algeria and Tunis depend upon France for seven-eighths of their imports; these consist of cloth, coal, coffee, tea, and various manufactures. From other countries they import cattle, lumber, tobacco, and leather.

Algiers, the capital, is the center of trade, and a favorite resort for invalids in winter. **Constantine** and **Oran** are important towns.

4. **Tripoli**.—Tripoli, having no mountains between it and the Sahara, is mostly sterile, the sand of the desert being blown in many places up to the very margin of the sea.

Tripoli, the capital, has a large caravan trade with the Sudan to obtain its products.

Fezzan, a great group of oases, belongs to Tripoli.

Water is found in abundance at depths of ten to twenty feet. Grains and fruits are cultivated. The date-palm is everywhere.

Murzuk, the capital, is the point of junction of caravans passing from the Sudan to Tripoli and Cairo. Formerly it was enriched by the traffic in slaves, bought in the Sudan, sometimes 10,000 in a year, and carried to Mediterranean cities. This traffic still continues, though forbidden by both France and England.

Tripoli and **Barca** are subject to Turkey. **Bengazi** is the capital of Barca.

Review Topics—Barbary States. Coast line. What borders them on the south? Climate. Products. Land of dates. Inhabitants. Caravan trade. Exports. How does Morocco rank among the Barbary States? Form of government. Exports. Capital. What of Fez? Algeria and Tunis. Minerals and vegetable products. What is said of the capital?

Other towns. Why is Tripoli sterile? What is said of the capital? Fezzan. Murzuk. To what power do Tripoli and Barca owe allegiance?



Interior of a house in Algiers.



Algiers.

LXXV. SAHARA, SUDAN, AND THE KONGO STATE.

1. **Sahara**.—The Sahara is the largest desert in the world. It reaches from the Atlantic Ocean on the west to the Nile on the east, and is nearly two-thirds the size of the United States.

It is a part of the **great desert belt** that extends from the western

LXXVI. THE WESTERN COAST.

1. The **Lowland** forming the western coast of Africa, part of which is known as Guinea, has, in general, a hot, unhealthy climate, and a luxuriant tropical vegetation.

2. The **Resources**, particularly the agricultural capacities of West Africa, are boundless. Cotton, coffee, and rice are



A village of civilized negroes at Cape Palmas, Liberia.

grown; and the forests yield in profusion palm oil, ebony, India rubber, and other tropical products.

The entire region, with the exception of Liberia, has been appropriated by European governments.

3. The **English possessions** in West Africa are six: Gambia, Sierra Leone, the Gold Coast, Lagos, Southern Nigeria, and Northern Nigeria. These together have an area larger than California, Oregon, and Washington, and a population of about 23,000,000—all natives, except a few hundred Europeans.

Gambia is a district near the mouth of the river of the same name.

Sierra Leone was originally established by the English Government as an asylum for negroes rescued from slave traders. **Freetown** is the capital.

The **Gold Coast** extends along the Gulf of Guinea, and includes the kingdom of Ashanti.

Lagos is an island and neighboring territory on the Bight of Benin, and includes the neighboring kingdom of Yoruba.

Southern Nigeria is a valuable region between Lagos and Kamerun, inhabited by negro tribes of various degrees of civilization.

Northern Nigeria comprises large areas of the Niger Valley. Within



View on the Guinea Coast.

its limits is the old empire of Sokoto, the most extensive and populous region in the entire Sudan.

The **trade** of these colonies is only in its infancy, but is steadily increasing. All the western colonies export palm oil and nuts, ground nuts, kola nuts (used in medicine), copal, rubber, coffee, and ivory, and import cotton cloth, cutlery, hardware, firearms, and liquors.

In all of these colonies industries and transportation are un-

developed. Experimental farming is carried on and roads being built. Schools are conducted for the natives, and in most of these institutions instruction is given in the trades and agriculture.

4. The **People** are for the most part natives. Pains have been taken in acquiring possession of the territories to preserve friendship.

The most widely diffused **religion** of Nigeria is Mohammedanism, and in most of the British West African colonies Mohammedans are numerous. But **Paganism** still largely prevails.

In northern Nigeria an English and a Canadian Missionary Society are at work, and have industrial and other schools at several stations. Thus Christian education is being received by thousands of pupils.

5. **Liberia** is a small independent republic, established in 1820 as a home for the freed negro slaves of America who desired to go there. Its capital is Monrovia, named after President James Monroe. Only a

small proportion of the population, however, consists of their descendants. The chief industry is coffee-raising.



Negro porters carrying ivory to the coast.

6. The **French possessions** in West Africa are Senegal, French Guinea, the Military Territories, the Ivory Coast, Cameroonia, and French Kongo.

Senegal comprises the basin of the Senegal River, and land to the west. **French Guinea** consists of part of the coast west of Sierra Leone. The **Military Territories** (three) lie east of Senegal and French Guinea. **French Kongo** is a vast area comprising nearly half a million square miles, and forming part of the lower Kongo Basin and extending north to Lake Chad. The **population** is estimated to be eight to fifteen millions.

Schools and post-offices have been established; railways and telegraphs are being constructed.

The **Ivory Coast** lies east of Liberia.

Dahomey was once the most powerful native kingdom on the coast. The king in olden times was a despot. Besides ordinary troops he had a body-guard of 4,000 "Amazons," or female warriors who were noted for their courage and discipline. When the king died, a number of his subjects were sacrificed at his tomb. These customs have all been changed.

The **natives** are pure negroes, and are ignorant and superstitious. They are, however, industrious, and produce the finest of palm oil and the best of maize. Ivory and India rubber are obtained.



Ships in the harbor on the western coast. Goods and passengers are brought ashore in small boats.



The Transvaal country, showing a Boer village—Burgersdorp.

4. **Basutoland**, northeast of Cape Colony, has a fine climate, is well watered, and is the best grain-growing region in South Africa.

5. **Natal** includes Zululand. Its chief exports are wool, gold, sugar, and hides. It is rich in coal.

Durban, the capital and seaport, is a modern English city. It is connected by railway with **Johannesburg** and **Pretoria**.

6. The immense territories of **South Rhodesia** and **North Rhodesia**, with the **Protectorate of Bechuanaland** and the **Central Africa Protectorate**, lie north of Cape Colony, and extend to German East Africa and the Kongo Free State. They are under British control.

North Rhodesia is controlled by the British South Africa Company. For administrative purposes it is divided into two sections, North-eastern Rhodesia and North-western Rhodesia.

The **Zambezi** is the dividing line between them. **Matabeleland**, **Mashonaland**, and the **Protectorate of Bechuanaland** form the southern section, while to the northward is the great basin of the **Zambezi** and the lake region. The entire area possesses immense deposits of gold, silver, and other minerals, and great grazing and agricultural possibilities.

A railroad from Cape Town and one from Beira in Portuguese East Africa extend into the territory, and steamers navigate Lake Nyassa and the **Zambezi**. Banks, churches, schools, public libraries, and hospitals have been established. **Salisbury** is the capital of Southern Rhodesia. **Bulawayo** is an important town.

7. The **Orange River Colony** is rich in gold and diamond mines and grazing lands. **Bloemfontein** is the capital.

8. The **Transvaal Colony** contains famous gold deposits. It may be called the California of Africa. It has good grazing lands.

Pretoria is the capital, and **Johannesburg**, the center of the gold mining, is now the largest city in South Africa.

Cape Colony once belonged to Holland, and many Dutch farmers (in their language, Boers) settled there. When Cape Colony became British, many of the Boers crossed the Orange river and the Vaal river and established colonies which in time became two Boer republics called the Orange Free State and the South African Republic. In 1900 these became British colonies as the result of war with England. Except in Johannesburg, the population is almost wholly Boers.

Review Topics.—Political divisions of South Africa. Products. Inhabitants. Trade.

LXXVIII. THE EASTERN COAST.

1. The eastern coast of Africa is held by Portugal, Germany, England, and Italy. It resembles the western in surface, climate, productions, and exports.

2. **Portuguese East Africa** extends from Delagoa Bay to

Cape Delgado. It comprises Mozambique and the adjoining territories. The region possesses immense resources.

There are **forests** of ebony, India rubber, and sandal-wood. The **Zambezi**, like the Nile, overflows its valley, and the soil yields almost spontaneously. Immense **coal** beds exist, and **gold** so abounds that some have thought this the Ophir of Solomon's day. Wax and ivory are exported.

Lourenco Marques, a small town, is the capital and chief seaport. It is the terminus of the Transvaal railroad. **Beira** is the terminus of a railroad to South Rhodesia.

3. **German East Africa** lies north of Cape Delgado, and extends westward to the Kongo Free State. It includes part of the old empire of Zanzibar.

Coffee, cocoa, vanilla, and fiber plants are grown.

4. **British East Africa** also comprises a portion of Zanzibar, together with a large part of the upper Nile valley. It includes also the protectorates of East Africa and Uganda. It is bounded on the north by the Egyptian Sudan.

The area thus embraced contains about 1,000,000 square miles; its **population** is over 12,000,000 negroes and Arabs.

The country is being developed. **Roads** and railroads are under construction, and the natives generally are quietly settling down to agriculture and other peaceable pursuits.

Zanzibar, on the island so called, is the chief market of the world for ivory and cloves.

5. **Italian Africa** consists of portions of the Red Sea coast, to which the name Eritrea has been given, and of a protectorate on the Somali coast. The pearl fisheries are valuable.



General view of Kimberley, showing buildings around the diamond mines.

6. **Somali** is shared by England, France, and Italy. It is peopled mostly by nomadic tribes. It is noted for the production of gum Arabic and myrrh. It exports these, together with ostrich feathers, ivory, gold dust, and cattle.

The chief town is the seaport of **Berbera**, where a great fair is held every year. At that time the place is crowded with thousands of traders from various parts of Asia and Africa, who come here and exchange the products of the two continents.

7. **Madagascar** is a colony of France. It has adopted Christianity, and is advancing in civilization.

Its climate and products are alike, but its animal life is very different from that of South Africa. It is rich in soil and minerals. One of its products is the **traveler's tree**, the leaf-stalks of which contain as much as a quart of pure water, even in dry weather. **P** and freight are transported on the shoulders of bearers; but roads and railways are being built.

The island of **Mauritius** belongs to Great Britain; **Reunion** France. They are extremely fertile, and export sugar, coffee, and Sisal hemp.

Review Topics.—What powers control east Africa? Describe their positions. Products. Inhabitants. Madagascar. Mauritius. Reunion.

TIME when it is Noon on the Meridian of Greenwich
P.M. 12
11
10
9
8
7
6
5
4
3
2
1
A.M.

AUSTRALASIA AND OCEANIA

SCALE OF MILES
170 340 680 1000

LOWA
55.045
By Airline



TIME when it is Noon on the Meridian of Greenwich
P.M. 12
11
10
9
8
7
6
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1
A.M.



This is one of the leading streets in Melbourne.

Federal Parliament, consisting of the Governor-General (who represents the King of England), a Senate, and a House of Representatives. Each state has a governor and a legislative assembly.

10. Cities.—The principal cities are Melbourne, the capital of Victoria and the chief commercial center of Australia; Sydney, the capital of New South Wales; Adelaide, the capital of South Australia, and Brisbane, the chief city of Queensland. These are all fine modern cities, and Melbourne and Sydney are about as large as Baltimore.



Queen Street in Auckland.

11. Tasmania.—Tasmania is very mountainous, and is rich in minerals. The climate is mild and the soil fertile. The chief occupations are lumbering, agriculture, and sheep raising. Wool is the leading export. Hobart is the chief city and capital.

12. New Zealand.—The islands of New Zealand have a mild climate and a fertile soil. Their vast forests yield valuable timber. Gold, silver, coal, iron, and copper abound.



Forest of kauri pine in New Zealand. The men are digging the fossil kauri gum.

New Zealand flax is an important product. It grows to the height of sixteen to twenty feet, and has leaves ten or twelve feet long. The fiber serves to make sails, nets, garments, baskets and ropes.

13. Occupations.—Sheep raising is the greatest industry, wool and frozen mutton forming over half the exports; many cattle are kept for dairying, the value of the butter and cheese export approaching \$10,000,000 annually. Gold, silver, and coal are the chief minerals. Apples, grapes, and other fruits are extensively grown. New Zealand has 20,000 square miles of forests. One of the famous trees is the kauri pine which yields the kauri (cowrie) gum of commerce. By far the larger part of the gum is found in masses often weighing one hundred pounds buried in the ground where the trees grew and perished ages ago. It is our chief import from New Zealand.

Manufactures are increasing rapidly in New Zealand and already supply most home needs.

They include iron and brass, building materials, furniture, cotton and woolen goods, boots and shoes, clothing, and lumber. Textiles, clothing, steel, sugar, tea, tobacco, spirits, wine, and many small articles of manufacture are imported.

Wellington is the capital. Dunedin is the principal seaport.

The aborigines (Maoris) are Malays. Unlike the natives of Australia, they are finely formed, and intelligent, but warlike.

14. Fiji (pop. 129,925 estimated) comprises a group of islands lying north of New Zealand and belonging to Great Britain. The people have embraced Christianity. Forty thousand children attend school. Sugar and cocoanuts are the chief exports.

Review Topics.—Australasia. Australia. Climate. Resources. Vegetation. Animals.

People. Occupations. Tasmania. Government. Cities. New Zealand. Fiji.

COUNTRIES.	Area in Sqr. Miles.	Population.
Australia	2,945,991	3,510,082
Tasmania	26,385	172,475
New Zealand	104,471	743,214
Borneo	243,843	1,335,578
Java	50,554	25,697,701
Sumatra	161,612	3,209,037
Hawaiian Islands	6,640	154,001

MAP STUDIES.—What should you think the climate of Australia must be? In what month is the Australian midsummer? Midwinter? What are the products of Australia? Of Tasmania? Of New Zealand?

Malaysia.—Where is Malaysia? Name the products of the Sunda Islands. What do we get from Borneo? What little islands between Sumatra and Borneo supply a large portion of the tin of the world?

Melanesia.—Where is Melanesia? New Guinea is named from Guinea, on the coast of Africa. The natives are of the negro race.

Polynesia.—Where is Polynesia? What is its northwest division called? What are the products of the Ladrões? Fiji? Samoa?

LXXX. OCEANIA.

1. Oceania consists of almost all the islands in the Pacific Ocean except those of Australasia.

Many of them are volcanic; hundreds are of coral formation.

2. The Coral Polyp.—The coral polyp is a small jelly-like animal which builds up from the bottom of shallow seas vast islands upon which sea-shells gather, seeds drift, plants grow, and finally man comes to dwell.

These islands are composed chiefly of lime. The polyps separate lime from the water, and build it up in solid form and die on the rock where they are born. In time millions and millions of these little skeletons are piled one upon another until an island or a reef rises above the water. In time waves grind up a soil upon these new-born rocks and tropical plants soon grow and cover them. The currents of the sea are hod carriers for these little masons of the deep, who work only in the warmer seas.

3. Coral Reef.—Many of the coral islands are surrounded by coral reefs at some distance from the shore. Between some of them and the shore ships ride in deep and smooth water. Such a reef skirts the northeast coast of Australia for more than a thousand miles. It varies in breadth from a few yards to nearly fifty miles.

4. Malaysia.—The islands southeast of Asia are called the



In the island of Sumatra.—Native houses and a temple.

Malay or East Indian Archipelago; sometimes Malaysia. Java, Sumatra, Celebes, the Moluccas, or Spice Islands, parts of Borneo and of New Guinea, with several smaller islands, belong to the Netherlands, and are known as the **Dutch East Indies**.

Malaysia is one of the most remarkable volcanic regions in the world. Java and Sumatra are studded with volcanoes.

5. Java is the "pearl of the Indies." It contains a population of more than 25,000,000. Important exports are coffee, tobacco, rice, sugar, tea, and cinchona.

The islands of Banka and Billiton are famous for their tin mines.

6. Sumatra, Celebes, and the Moluccas are famed for their spices (nutmeg, mace, and cloves).

In Sumatra grows the largest flower in the world. Its cup is a yard in diameter, and holds two gallons of water. The plant is a parasite called *Rafflesia*. The chief exports are tobacco and black pepper.

There is regular steamship service between the Dutch colonies and the countries of Europe and Asia. A large part of the land is farmed under the direction of the government and the products are sold at auction in Amsterdam to Dutch merchants, who are the "middlemen" for the distribution of colonial products. So it happens that we buy Java coffee, Sumatra tobacco, and Banka tin in Holland. We also buy there the sugar, gums, and spices grown in the Dutch colonies. Our sales to Holland for export to the colonies are mainly kerosene and machinery.

7. Borneo is the largest island in the world except Papua.



Hulling coffee in Java.

It exports timber, gutta-percha, coconuts, and tobacco. Among its curiosities is the flying frog.

8. The Philippines. (For a description see p. 82.)

9. Melanesia comprises Papua,

or New Guinea, and a chain of islands extending to and including New Caledonia.

It derives its name, Melanesia, or **Black Islands**, from black tribes called Papuans. They are savages.

New Guinea has been divided by treaty among three na



In the Solomon Islands.

Part is owned by the Netherlands, part by Great Britain, and by Germany. The Dutch have the largest share.

The English are actively developing the resources of their part and are Christianizing and civilizing the natives.

German New Guinea, **Kaiser Wilhelm's Land**, has fertile soil suited to tobacco. Much of the land is adapted for grazing and the forests furnish valuable timber.

A curious bird found in New Guinea is the **bird of paradise**.

New Caledonia, a mountainous island east of Australia, belongs to France, and, with the neighboring **Loyalty Islands**, it is used as a convict colony. The island is famous for its metallic ores—tin, mercury, copper, and platinum being found.

10. Polynesia.—Eastward of Melanesia lies **Polynesia**, or Many Islands. These dot the Pacific through the space of 10 million square miles.

The northwestern division of Polynesia is sometimes called **Micronesia**, or the Little Islands.

The Polynesians are Malays.

The bread-fruit, yam, and coconut are their chief **food plants**. The sweet-scented sandalwood, which the Chinese burn as incense in pagodas, and **copra**, the dried kernel of the coconut, are exported.

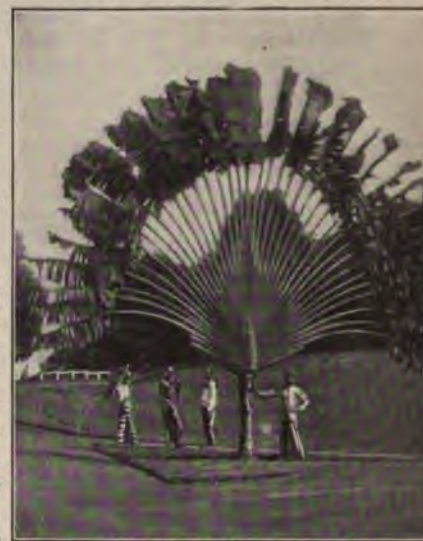
Samoa is a volcanic group about 13° south of the equator, not far from the center of the Pacific Ocean, and the region of the southeast trade-wind. From December to April has a wet season, with a rainfall, in some years, amounting to 100 inches.

The **natives** are Malays—intelligent but indolent. They have converted to Christianity. From the skill with which they manage their canoes amid the surf, the islands have been called the "Islands of the Navigators."

Savaii and **Upolu** belong to Germany; Tutuila and Manua to the United States.

11. Hawaii. (For description, see p. 82.)

Review Topics—Describe Oceania. Two kinds of islands. The polyp. Coral reefs. Malaysia. For what remarkable? Java. Sumatra. Celebes. The Moluccas. Borneo. Melanesia. The natives. New Guinea. New Caledonia. Polynesia. Micronesia. Products. Samoa.



The traveler's palm. This tree grows in many of the countries. When cut into, it yields several quarts of oil.

GENERAL REVIEW.

I. Form.—Of what form is the earth? Was its real form always known? Columbus thought he could reach India by sailing west from Europe, was he right? What expedition proved that the earth is round? How do eclipses of the moon prove it is better?

What is the difference between the polar diameter of the earth and the equatorial? Between the polar and equatorial circumferences? What do these differences show about the exact figure of the earth? What is the area of the earth?

How is position indicated on the surface of the earth? Are the degrees of latitude between 0° and 10° and between 60° and 70° equal each to each? Are all degrees of longitude equal each to each? How long in miles is a degree of longitude at the equator? Where is the point which has 0° latitude and 0° longitude?

II. Motions.—What are the motions of the earth? What is the rate at which a point on the equator rotates? How are day and night caused? Explain difference of time. Compare as to time Liverpool, New York, San Francisco.

What determines the length of the year? Explain the changes of the seasons. The inequality of day and night. The equinoxes. The solstices.

III. Zones.—What does zone mean? Describe the division of the earth's surface into zones. How far are the tropics from the equator? Why just so far? Why are the polar circles $23\frac{1}{2}^{\circ}$ from the poles? Describe the sun's apparent annual journey. State its real meaning. Where does Christmas occur at midsummer? Explain why.

IV. Divisions of Surface.—Which is greater, the land or the water-surface of the earth? Is the water surface waste? What are its great uses?

By what line is the earth as shown on maps divided into hemispheres? What continents are in the Eastern hemisphere? In the Western?

By what line is the earth divided into Northern and Southern hemispheres? Which continents are mostly in the Southern hemisphere? Which one is entirely within that hemisphere?

Which alone of the continents is really a separate body of land? How are North and South America connected? Asia and Africa? What forms the boundary between Europe and Asia?

In what ocean do we find the greatest number of islands? Name some of the most important islands and island groups of the world.

Of which continents are the coast-lines the most indented? Of which is the coast-line the most regular? What is the value of coast indentations?

Define an ocean. Name the oceans. Where is each? Are they really separated? What are the world's great inland seas? Have they any special value? What is the Gulf Stream? The Japan Stream? Describe the course of each. The effect of each upon the continent toward which it flows.

V. Relief.—What and where are the great mountain systems of North America? South America? Europe? Asia? Africa? In what directions do these systems lie? Name some of the highest mountains and their altitude.

What is a volcano? What and where are some of the most noted?

What plateau regions do you find in North America? In South America? How would you describe Africa as regards relief? What plateau region in Southwestern Europe?

Name the great plain regions of North America. Of South America. Europe. Asia. Name some of the noted valleys of the world.

VI. Drainage.—Explain how the drainage of the world is effected. Name and locate the great rivers of North America. South America. Europe. Asia. Africa. Australia. What beside drainage are the offices of rivers?

Define a lake. Name and locate the great lakes of North America. Africa. The lakes of Europe. Asia. South America. Australia. Name some salt lakes. Why are they salt?

VII. Climate.—Define climate. What is rain? Its source? Explain evaporation and condensation. What zone has the greatest rainfall? What region? What regions the least? Explain winds. Their effect upon rainfall. Give illustrations. Explain the effect of mountains upon rainfall. Give illustrations. What effect has elevation upon climate? Nearness to the sea? Illustrate.

VIII. Vegetation.—Where do you find the densest and most luxuriant vegetation? The most scanty? Name some of the timber trees of North America. The great lumber regions of the continent. For what kinds of wood is Central America noted? What forest products come from South America? Where is the great forest region of Northern Asia? What valuable kinds of timber in Southern Asia? Where are the lands of the bamboo and palm-trees? Name some of the forest trees of Europe. Of Africa. Of Australia. How are Australian trees peculiar? What countries of Europe have noted lumber regions?

Where does sugar-cane flourish? What other sugar-plant is cultivated? Whence come our great supplies of sugar?

Name some of the great sources of oranges, lemons, bananas, apples, grapes. What are the wine-making parts of the United States? Of Europe? Africa?

Whence comes the tea supply of the world? That of coffee? Of cocoa?

What are the great food plants of the world? The most important? What are the chief wheat-growing regions of North America? Where in South America is wheat largely raised? What are the great wheat-growing countries of Europe? What country in Asia is noted for its wheat? What part of Asia is destined to become a large producer of wheat? Where is rye a staple food? What part of the world produces the largest yield of corn? What countries are famed for their rice crop? What parts of the United States? What nations use rice as their chief food? In what regions do potatoes flourish? Where is millet the chief food of the people? Where is breadfruit indigenous? The taro? What fruit is largely the food of the Arab? Where is the banana a great food plant?

What island yields the most famous tobacco in the world? What parts of the United States are noted for their tobacco? What islands in the Pacific? Where are the great opium-raising regions? Who are the great consumers of opium? Where is the coca plant cultivated? What is the effect of its leaf?

What plants supply fibre for making clothing? What are the great cotton-growing regions of the world? What countries are famed for their linen? What plants yield fibre for cordage? Where are they grown?

What continent is famed for its "air-plants"? Whence come cinnamon? Clover? Pepper? Ginger? Camphor? Rubber? Gutta-percha? Attar of roses?

IX. Animal Life of the World.—In what zone are the largest and fiercest wild animals found? Name some of the wild animals of North America. Of your own State. The domestic animals of North America. What parts of the United States are famed for cattle-raising? For sheep? Hogs? Name some of the animals of South America. What are the cattle-raising regions of this continent? Name some of the wild animals of Europe. Of the domestic. The animals of Africa. Of Australia.

What are the great wool-growing regions of the world? Which of our States are famed for wool? Name the silk-producing countries of Asia. Of Europe. The great fur-bearing regions in North America. In Asia. The most noted seal fisheries.

Where are the great fishing grounds of North America? Where is whale fishing carried on? Where are the great fishing grounds of Europe? Where are sponges obtained? Pearls?

X. Population.—About how large is the population of the globe? In what zones and on what continents are most of the people? What is the population of North America? How distributed? Is any part of South America densely settled? How large is the population of Europe? Asia? Africa? Australia?

Describe the appearance of the different races of men. Where do you find each?

XI. Civilization.—What do we mean by the term civilized? Compare the races in this respect. Where do you find savages and barbarous people? Civilized? Enlightened? Which is the most progressive nation of the Mongolians?

Describe the homes of an enlightened people. What tribes live in tents? Of what do the Eskimos build their huts? In what sort of dwelling do the Bushmen live? Of what do the Japanese and Philippine islanders make their houses? How did the natives on the coast of Venezuela originally build their houses? How do the natives of New Guinea? Where do many of the people live in boats?

What leads to the building of towns? What causes towns to grow into cities? What reasons can you give for the growth of New York? Chicago? San Francisco? New Orleans? St. Louis? Atlanta? Galveston? Buffalo? Kansas City? London? Glasgow? Hamburg? Vienna? Singapore?

XII. Religion.—What are the great religions of the world? Where do you find each?

XIII. Government.—Why is government necessary? What nations have the best forms? The poorest?

XIV. Education.—What is education? Describe the education of savages. Of the Chinese. Name countries in which education is compulsory. What countries have the best public instruction? Name some which have little or none. How do well-educated nations rank? Give illustrations of this. Of the reverse.

XV. Migration.—What causes lead to migration? Which is the most migratory race? What parts of the world have been settled by English colonists? Spanish? French? Dutch? What can you tell of the colonization of Africa now going on? Of English colonization in India? Of foreign intercourse with China? What has stimulated modern migration?

XVI. Industries.—Name regions in which the people have no occupation save that of securing food. How do such people rank? In what kinds of labor are the intelligent people of the world engaged? Which of these is the most important? What determine the occupations of a country or region? What are the great agricultural countries of the world? The leading manufacturing countries? The leaders in commerce? In fishing?

Which are the largest coal-producing countries? The greatest producers of silver? Gold? Tin? Copper? Emeralds? Diamonds? Salt?



TRADE AND NAVIGATION.

What is commerce? What was in early ages the great trade of the world? What nations gained control of the India trade after 1497? What caused this?

What means of transportation are employed in Central and South Africa, and why? What in the Sahara? What in carrying on the great tea and fur trade between Russia and China? What beasts of burden are used in the Andean States? How is trade carried on between India and Western Asia?

Goods are paid for among civilized nations with money, chiefly gold and silver. But in many parts of Africa the products of one region are traded for those of another. In Abyssinia small blocks of salt, and in many parts of India and of the African coast small shells called *couries*, have been used as money.

In what parts of the United States are cattle largely raised? In what parts of South America? Where are the most important fisheries for cod, herring, and mackerel? Salmon? The whale?

What parts of the Pacific coasts of North and South America are famed for wheat? What portion of Russia? Of North Africa? What grains abound in the central portions of North America? Where is rice extensively raised? What are the great tea-growing regions? What important article of consumption comes from Brazil? Which of the Dutch East Indies is famed for its coffee? From what part of Arabia do we get the best coffee? What are the great coffee ports? What one of the West Indies is noted for sugar? What part of the United States? What islands in the Pacific? To what part of the United States do these islands send sugar? The shores of what great inland sea are famed for their fruits? What islands in the Western Hemisphere are also noted for their fruits?

What parts of the United States grow large quantities of wool? What parts of South America? What English colonies? What section of the United States produces cotton? What portions of Asia? Africa? What countries are noted for flax? What is made of flax? What are the great silk-growing countries of Asia? Of Europe? From what regions do we get furs? Sealskins? Ostrich feathers?



What continent chiefly supplies us with ivory? What is the great ivory port of the world? From what source do we get supplies of gum? Where do we get our chief supplies of India rubber? Of gutta-percha? Naval stores? Jute? Hemp? Drugs? Peruvian bark? Tobacco? Opium? Spices?

What is the great manufacturing region of the New World? Of the Old?

What cargo would a ship be likely to carry from Shanghai to New York? From Bombay to Liverpool? From Odessa to London? From San Francisco to London? From Rio to New York? Montevideo or Buenos Aires to Liverpool? From the Guinea Coast to Liverpool? Havana to New York? New York to Liverpool? New Orleans to Liverpool?

What enables sailing vessels to venture out of sight of land? The time required to cross the ocean has been shortened by voyagers availing themselves of the winds and currents of the sea.

What is the general direction of the winds in the northern half of the Torrid Zone? What in the southern half? What in the North Temperate

Zone? In the South Temperate Zone? What striking exception to this system do you find in the Indian Ocean and China Seas?

What is the best route from New York to Liverpool? How would a vessel make the quickest return passage?

By what route does tea pass from China to Russia? From China to New York? Formerly it was brought by steamers through the Red Sea and Suez Canal, but now most of it is brought across the Pacific to San Francisco or Vancouver and thence by railroad. Compare these routes in length. The old route was around Cape Horn, and thence through the Atlantic. What is the shortest route from Liverpool to Bombay? By what other route may vessels go? At what points do the steamers touch that ply between San Francisco and Sydney? What are the two routes between Sydney and Liverpool? When the canal is cut across the Isthmus of Panama, it will shorten the water route from New York to San Francisco about 10,000 miles, and would make an almost straight course between England and Australia, and between the Pacific shores of South America and the Atlantic ports of the United States.

GEOGRAPHICAL AND STATISTICAL TABLES.

DIMENSIONS OF THE EARTH.

Polar Diameter.....	7,899 miles.
Equatorial Diameter.....	7,925 "
Equatorial Circumference.....	24,899 "
Superficial Area.....	196,861,750 square miles.

HEIGHTS OF PRINCIPAL MOUNTAINS.

North America.	Feet.
MOUNT MCKINLEY,	20,464
MOUNT LOGAN,	Canada..... 19,500
ORIZABA,	Mexico..... 18,314
MOUNT ST. ELIAS,	Alaska..... 18,010
POPOCATEPETL,	Mexico..... 17,784
MOUNT WRANGELL,	Alaska..... 17,500
MOUNT BROWN,	Canada..... 16,000
MOUNT WHITNEY,	California..... 14,898
MOUNT RAINIER,	Washington..... 14,526
MOUNT SEASTA,	California..... 14,350
ROCKY MOUNTAINS (average),	 10,000
SIERRA NEVADA,	 9,000
MOUNT MITCHELL,	North Carolina..... 6,711
MOUNT WASHINGTON,	New Hampshire..... 6,298
APPALACHIAN MOUNTAINS (aver.),	 2,500
South America.	
ACONCAGUA,	Chile..... 23,062
SAHAMA,	Bolivia..... 22,350
GUALATIERRI,	Chile..... 22,000
SORATA,	Bolivia..... 21,288
ILLIMANI	 21,149
CHIMBORAZO,	Ecuador..... 20,517
AREQUIPA,	Peru..... 18,500
TOLIMA,	Colombia..... 18,321
ANDES MOUNTAINS (average),	 13,000

Europe.	
ELBURS,	Caucasus Mountains..... 18,572
KASBEK,	" "..... 16,545
MONT BLANC	Alps..... 15,784
MONTÉ ROSA,	"..... 15,223
MATTERHORN,	"..... 14,780
FINSTERRAAR-HORN,	"..... 14,039
JUNGFRAU,	"..... 13,718
MALADETTA,	Pyrenees..... 11,200
MOUNT ETNA (volcano),	Sicily..... 10,874
MOUNT OLYMPUS,	Greece..... 9,745
MOUNT VESUVIUS (volcano),	Italy..... 8,948
Africa.	
KILIMANJARO,	Central Africa..... 20,000
KENIA,	" "..... 18,000
RUWENZORI,	" "..... 17,000
TENERIFFE,	Canary Islands..... 12,182
ATLAS MOUNTAINS (highest),	 11,400
Asia.	
EVEREST,	Himalaya Mountains..... 29,000
DAPSANG,	Karakoram Mountains..... 28,300
KANCHINGINGA,	Himalaya Mountains..... 28,156
DHAWALAGIRI,	"..... 28,000
HINDU KUSH MOUNTAINS...	 20,000
DEMAVEND,	Elburz Mountains..... 18,469
ARARAT,	Armenia..... 17,280
FUJUTAMA,	Japan..... 14,000

**LENGTH OF PRINCIPAL RIVERS, AND AREA OF
RIVER-BASINS.**

NAME.	LENGTH.	AREA OF BASIN.
North America.	Eng. Miles.	Square Miles.
Mississippi (entire).....	4,300	1,244,000
Mackenzie.....	2,300	443,000
St. Lawrence.....	2,200	335,515
Saskatchewan.....	1,732	432,000
Yukon.....	2,000	200,000
Arkansas.....	2,000	189,000
Rio Grande.....	1,800	240,000
Red.....	1,600	97,000
Columbia.....	1,400	298,000
Colorado.....	1,000	257,000
Ohio.....	450	214,000
Brazos.....	950	34,000
Tennessee.....	800	41,000
South America.		
Amazon.....	3,750	2,510,000
La Plata (Parana).....	2,500	1,242,000
Orinoco.....	1,600	340,000
Madeira.....	2,000	
San Francisco.....	1,200	250,000
Europe.		
Volga.....	2,300	400,000
Danube.....	2,000	269,180
Dnieper.....	1,230	242,000
Don.....	1,325	170,000
Rhine.....	960	65,280

NAME.	LENGTH.	AREA OF BASIN.	AREA AND POPULATION OF THE WORLD.	Area in sq. miles.	Population.
Asia.	Eng. Miles.	Square Miles.			
Yenesai.....	8,400	1,000,000	North America.....	7,652,396	106,182,000
Yangtze.....	3,320	547,800	South America.....	6,844,602	38,391,000
Ob.....	8,000	924,800	Europe.....	8,797,410	297,008,000
Amur.....	2,650	788,000	Asia.....	17,039,066	911,308,000
Lena.....	2,400	800,000	Africa.....	11,518,104	155,633,000
Brahmaputra.....	2,300	450,000	Australasia and Oceania.....	8,458,029	6,358,000
Indus.....	2,000	812,000	Polar Islands.....	1,689,834	12,000
Euphrates.....	1,780	250,000	Total.....	52,209,431	1,614,632,000
Ganges.....	1,961	482,490			
Irawadi.....	1,200	331,200			
Africa.					
Nile.....	4,100	1,425,000			
Kongo.....	3,000	1,500,000			
Niger.....	3,000	800,000			
Zambezi.....	1,800	900,000			
Australia.					
Murray.....	1,500	500,000			

PRINCIPAL RELIGIONS OF THE WORLD (1892).	
Christians.....	477,086,125
Jews.....	7,056,000
Mohammedans.....	176,834,271
Buddhists and other Asiatic Religions.....	460,300,000
Brahmans.....	190,000,000
Pagans.....	117,951,500

POPULATION OF FOREIGN TOWNS AND CITIES.

(From the most recent foreign authorities.)

[illegible]

Many references have been made to these tables in the preceding lessons, and you have become accustomed to using them; but a great deal more may be learned from a more careful study of them. A noted German author has said that "figures show

how the world is governed." Whether this is true or not, it is certainly true that figures show how the commerce of the world is carried on. The questions which follow are suggestive of some things that these figures teach.

TABLE III.*

LEADING EXPORTS OF THE UNITED STATES, 1903-1904.	VALUES.	LEADING COUNTRIES TO WHICH SENT.	LEADING PORTS AND DISTRICTS FROM WHICH SENT.
Raw Cotton.....	\$372,049,264	Great Britain, Germany, France, Italy, Spain, Japan..	Galveston, New Orleans, Savannah, New York.
Manufactured Cotton (cloth, yarn, clothing).....	22,403,713	China, Canada, West Indies	New York, North and South Dakota, Boston.
Meat and Dairy Products	176,027,586	Great Britain, Germany, France, Belgium	New York, Boston, Baltimore, Philadelphia.
Breadstuffs (grain, flour, meal)	149,050,378	Great Britain, Germany, France, Belgium, Holland...	New York, Baltimore, Galveston, New Orleans.
Iron and Steel Goods (machinery, engines, hardware).....	111,948,586	Great Britain, Germany, Mexico, Canada	New York, Buffalo, Cuyahoga, Detroit.
Petroleum (kerosene, crude and other oils).....	79,060,469	Great Britain, Germany, Holland, Belgium ..	New York, Philadelphia, Delaware, Baltimore.
Timber, Lumber, Furniture, etc.	65,428,417	Great Britain, Germany, Canada, West Indies.....	New York, Pensacola, New Orleans.
Copper (bars, plates, and manufactured).....	57,142,081	Great Britain, Germany, France, Holland.....	New York, Baltimore, Philadelphia.
Live Animals (90% cattle).....	47,977,875	Great Britain, Cuba	New York, Boston, Baltimore, Philadelphia.
Tobacco (leaf and manufactured)	34,683,531	Great Britain, Germany, Italy, France	New York, Baltimore, New Orleans.
Leather and Manufactures of.....	33,980,615	Great Britain, Australasia, Canada.....	New York, Boston.
Coal and Coke.....	30,043,556	Canada, Mexico, Cuba ..	Buffalo, Cuyahoga, Niagara, Oswego.
Agricultural Implements.....	22,749,635	France, Canada, Russia, Argentine, Germ'y, Gt. Britain	New York, N. and S. Dakota, New Orleans.
Fruits and Nuts	20,678,665	Great Britain, Germany, Canada, France.....	New York, San Francisco.
Cotton Seed Products (oil-cake, meal)	19,992,542	Great Britain, Germany, Netherlands, France, Belgium	New Orleans, Galveston.
Naval Stores (tar, rosin, turpentine)	16,145,222	Great Britain, Belgium, Germany, Netherlands.....	Fernandina, Savannah.
Chemicals, Drugs, and Dyes	14,480,323	Great Britain, Mexico, Canada, Germany, Italy	New York, Boston, San Francisco.
Cars and Vehicles.....	10,936,618	Great Britain, Mexico, Canada, West Indies, Japan...	New York, El Paso, Detroit.
All Others	150,399,941		
Total Exports.....	\$1,435,179,017		
Total Imports	991,087,371		
Balance of Trade in favor of United States.....	\$444,091,646		

Name our largest export. Why is more cotton shipped through the ports of Galveston and New Orleans than through New York? Why is Great Britain (a small country) so large a purchaser of our goods? What countries buy our manufactured cotton? What do you know of the industries of these countries? What can you say of the industries of those

countries that buy our agricultural implements? What is exported from Fernandina? From Buffalo? From Savannah? Why? Why are more goods exported from New York than from other ports? Select countries that are the largest buyers of foods? Why is this? What countries buy our raw materials? Why? What countries buy our manufactures? Why?

TABLE IV.

LEADING IMPORTS OF UNITED STATES, 1903-1904.	VALUE.	LEADING COUNTRIES FROM WHICH OBTAINED.	LEADING PORTS AND DISTRICTS AT WHICH ENTERED.
Raw Sugar.....	\$71,915,753	Cuba, Java, Hawaiian Islands, Germany.....	New York, Philadelphia, New Orleans, Boston.
Coffee	69,551,799	Brazil, Colombia, Venezuela, Guatemala, Mexico...	New York, New Orleans, San Francisco, Baltimore.
Chemicals, Drugs, and Dyes.....	65,294,558	Chile, Germany, Great Britain, India.....	New York, Philadelphia, San Francisco, Boston.
Raw Fiber (hemp, flax, jute, grasses)	37,814,285	Mexico, Philippines, India.....	New York, Boston, New Orleans, Mobile.
Manufactured Fiber (linens, cordage, bagging, etc.).....	40,308,837	Great Britain, Germany, Belgium, France.....	New York, Boston, New Orleans, Philadelphia.
Raw Cotton.....	9,387,331	Egypt, Peru.....	Boston, New York.
Mfd. Cotton (cloth, clothing, knit goods, laces, etc.).....	49,524,246	Great Britain, Germany, Switzerland, France.....	New York, Chicago, Boston.
Raw Silk.....	46,100,500	Japan, China, Italy, France	Oswegatchie, San Francisco, New York, Puget Sound.
Manufactured Silk (cloth, ribbons, velvets, etc.).....	31,973,680	France, Germany, Japan, Switzerland.....	New York, Philadelphia.
Hides of Cattle and Goatskins.....	52,006,070	India, Argentina, Russia, France	New York, Boston, Philadelphia.
India Rubber and Gutta Percha (raw).....	47,049,434	Brazil, Congo State, East Indies, African Colonies..	New York, Boston.
Raw Wool and Hair of Goat, Alpaca, etc.	24,813,591	Australasia, Argentina, Russia, Turkey.....	Boston, New York, Philadelphia.
Manufactured Wool (cloth, carpets, clothing, etc.).....	17,733,788	Great Britain, France, Germany.....	New York, Boston, Philadelphia.
Unmfd. Iron and Steel (ore, pig iron, bars, etc.).....	17,688,131	Great Britain, Germany, Belgium, Sweden.....	Baltimore, Philadelphia.
Mfd. Iron and Steel (cutlery, machinery, etc.).....	10,933,460	Great Britain, Germany, Belgium	New York, Boston, Philadelphia.
Jewelry and Precious Stones	25,012,940	Great Britain, Netherlands, France, Belgium.....	New York.
Fruits and Nuts.....	24,435,854	Italy, Central America, West Indies, Spain	New York, New Orleans, Boston, Mobile.
Leaf Tobacco.....	16,939,487	Cuba, Sumatra, Germany, Turkey.....	New York, Tampa, Philadelphia, Chicago.
Cigars and Cigarettes.....	3,133,859	Cuba, Egypt, Mexico.....	New York, San Francisco, Boston.
Tin (unmanufactured)	21,486,311	Straits Settlements, Malay States, Dutch East Indies	New York, San Francisco, Philadelphia, Boston.
Wood (timber and lumber).....	20,489,432	Canada, Central America, East Indies	New York, Champlain, Oswegatchie, Huron.
Wood (furniture and pulp).....	6,494,921	Canada, Germany, Norway	New York, Boston.
Tea.....	18,229,310	Japan, China, British India	New York, Chicago, San Francisco, Boston.
Copper (unmanufactured).....	18,179,513	Mexico, Canada, Great Britain	Arizona, Perth Amboy, Baltimore, New York.
Spirits, Wines, and Malt Liquors.....	16,662,702	France, Germany, Great Britain, Spain.....	New York, Boston, San Francisco.
Furs (skins and clothing).....	14,763,002	Great Britain, Germany, France, Belgium	New York.
Leather and Leather Goods (gloves)	11,700,215	Great Britain, Germany, France.....	New York, Boston.
All Others.....	208,064,362		
Total Imports.....	\$991,087,371		

Where is raw sugar refined (Index)? What kind of sugar do we get from each country named? About how much is the value per person of our sugar import? Of the coffee import? What kind of raw fiber do we get from each country named? Compare the industries of these countries with those of the countries where we buy manufactured fiber. What use have we for the cotton of Egypt and Peru? What port receives wool and cotton, and why? Why is India a large exporter of hides? (Brahmanism (LXIX) forbids the use of any part of a dead ani-

mal.) What is the location of the countries supplying rubber? Where are rubber goods made (see Index)? Compare our export of tobacco with our import. Make similar comparisons in regard to leather, steel, fruits and copper. Explain why these articles are both imports and exports. Notice that some articles are imported as raw materials and exported as manufactured goods; others, like fruits and tobacco, differ in kind; still other goods are imported because of convenience. Canadian coal, for example, is nearer to some parts of our country than the home supply.

* For Tables I and II, see p. x.

TABLE V.

NAME OF PORT AND CUSTOMS DISTRICT.	VALUE OF EXPORTS.	VALUE OF IMPORTS.	TOTAL TRADE.	SHIPS ENTERING AND LEAVING.	TONNAGE.	AMERICAN.	FOREIGN.
New York	\$506,808,013	\$600,071,033	\$1,106,879,046	7,272	17,936,114	2,414,240	15,522
New Orleans.....	148,595,103	34,036,516	182,631,619	1,903	3,064,909	287,080	2,717
Boston.....	89,845,772	80,657,697	170,503,469	2,783	4,963,348	402,227	4,561
Galveston.....	145,316,457	1,847,646	147,164,103	821	1,786,733	25,043	1,761
Philadelphia.....	71,393,254	53,890,106	125,283,360	1,919	3,440,296	166,171	3,272
Baltimore.....	82,836,164	20,345,788	103,181,952	1,326	2,526,987	139,988	2,386
San Francisco.....	32,547,181	37,542,978	70,090,159	981	1,890,894	753,605	1,136
134 Other Districts.....	383,486,327	162,695,605	546,181,934	46,442	24,438,704	9,132,193	15,307
Totals.....	\$1,460,827,271	\$991,087,371	\$2,451,914,742	63,447	59,967,985	13,320,547	46,640

Ports of Entry.—The foreign trade of a country is carried on through certain seaports designated by the government as "Ports of Entry." Such a port with the neighboring territory is known as a "Customs District." It contains a custom house with a corps of officers who inspect all goods entering the port from foreign countries and collect the duty as fixed by the tariff laws. Each lot of imported goods is accompanied by an invoice, or list, which has been inspected and signed by our consul at the foreign port from which the goods were shipped, and by a bill of lading signed by the transportation company which receives them from the exporter. It is the duty of the customs inspector to see that the goods delivered to the importer are the same in amount and value as those described in the invoice. When such is the case the merchant may call at the custom house, pay the duty, and receive his goods.

For the convenience of importers who do not wish their goods at once, or who live in inland towns, goods are stored in "bonded" warehouses or shipped "in bond" to the port of entry nearest the importer, who in either case must pay all expense of carriage besides the duty. The importance of a port of entry is measured by the value of the goods exported and imported, or by the number and tonnage (carrying capacity) of the ships entering and leaving during the year. Table V shows the rank of our chief seaports during the year ending June 30, 1904.

QUESTIONS ON TABLE V.

What part of our exports goes through the port of New York? What part of our imports? Why does New York have so large a share of the foreign trade? Compare the exports of New Orleans and Galveston with their imports. Why are the former so much larger? Name products that could be most cheaply exported by way of Boston, Galveston, Philadelphia, San Francisco. Which port has the largest percentage of foreign vessels? Of American vessels? Find out what part of our trade is carried in foreign ships. Which three ports receive the most foreign goods? Can you give a reason for this? Are they large cities? Are they good distributing points? Have they great capital to carry on extensive business? How can the business of a seaport be increased? The business of New Orleans has been increased by improved navigation on the Mississippi and the lowering of railroad freight rates from the grain and meat producing regions. How does this help the producer?

QUESTIONS ON TABLE VI.

What countries have a sparse population? What are the leading industries in these countries? What kind of goods do they buy of us? Sell to us? Compare the imports of thickly settled countries with those of thinly settled countries. Why are the former greater? What kinds of goods does each import? Find countries whose imports exceed their exports; find other countries whose exports exceed their imports; compare these countries as to population, industries and wealth. How can you explain the small import of Bolivia and Switzerland from the United States? What countries have a balance of trade against them? (Refer to Fig. 21 and see how these countries rank in shipping.) Which countries have large balances in their favor?

TABLE VI.

DENSITY OF POPULATION AND TRADE OF THE PRINCIPAL COUNTRIES.

COUNTRIES.	POPULATION PER SQUARE MILE.	FOREIGN COMMERCE.		COMMERCE WITH THE UNITED STATES.	
		IMPORTS.	EXPORTS.	IMPORTS FROM UNITED STATES.	EXPORT TO UNITED STATES.
		Dollars.	Dollars.	Dollars.	Dollars.
Argentina	4.22	126,614,000	213,250,000	14,271,777	9,295,000
Australasia:					
Commonwealth.	1.27	203,644,000	213,713,000	28,101,784	13,840,000
New Zealand ..	7.52	55,121,000	66,403,000		
Austria-Hungary.	188.14	381,054,000	432,345,000	7,893,753	10,660,000
Belgium.....	588.59	512,679,000	407,295,000	45,853,856	24,070,000
Bolivia.....	2.58	5,587,000	11,076,000	76,926	
Brazil.....	4.45	120,747,000	180,219,000	10,486,755	69,630,000
Canada.....	1.79	243,590,000	177,833,000	131,234,985	51,550,000
Chile.....	10.90	48,336,000	67,846,000	3,753,222	7,116,000
China.....	265.76	217,607,000	138,472,000	14,970,138	24,980,000
Colombia.....	7.92	10,695,000	18,487,000	2,923,404	4,810,000
Cuba.....	36.58	58,826,000	77,849,000	21,761,638	62,940,000
Denmark.....	160.48	119,180,000	94,470,000	14,411,599	68,000,000
Ecuador.....	10.38	7,029,000	8,811,000	1,347,850	1,820,000
Egypt.....	25.36	82,811,000	96,584,000	744,260	9,050,000
France.....	188.17	926,632,000	820,685,000	88,690,130	80,080,000
German Empire..	280.36	1,428,640,000	1,193,483,000	224,562,019	122,270,000
India, British....	166.62	278,054,000	409,535,000	4,866,683	51,830,000
Italy.....	293.50	359,358,000	292,867,000	36,041,878	33,650,000
Japan.....	310.60	157,933,000	142,414,000	20,874,887	45,510,000
Mexico.....	17.65	74,690,000	83,366,000	43,124,985	71,110,000
Netherlands.....	425.61	912,376,000	781,750,000	72,961,060	20,860,000
Dutch East Indies.....	48.53	72,545,000	95,102,000	1,597,299	14,210,000
Peru.....	6.46	18,412,000	18,774,000	3,471,135	3,260,000
Portugal.....	150.65	60,044,000	30,710,000	2,915,897	3,220,000
Roumania.....	116.63	52,095,000	68,637,000	202,735	11,000,000
Russia ..	16.28	308,563,000	443,066,000	14,313,501	7,830,000
Spain.....	95.58	185,632,000	178,651,000	18,297,940	8,750,000
Sweden and Norway.....	24.15	220,021,000	225,188,000	10,435,944	5,370,000
Switzerland.....	210.07	230,860,000	171,485,000	413,748	21,150,000
Turkey.....	22.36	107,873,000	68,821,000	562,956	6,690,000
United Kingdom.	345.73	2,640,564,000	1,415,179,000	543,766,877	176,720,000
United States....	26.56	991,087,000	1,435,179,000		
Philippine Islands.....	66.00	33,221,000	30,251,000	4,832,900	12,060,000
Uruguay.....	13.28	25,958,000	38,587,000	1,901,651	2,570,000
Venezuela.....	4.12	8,560,000	14,900,000	2,736,726	6,600,000
Other countries.		837,672,000	611,829,000	70,948,293	35,910,000
All countries....		12,126,943,000	10,720,551,000	1,465,584,391	1,023,280,000

Are such countries richest? Which five countries sell us the most goods? What are these goods (Table IV)? Which five buy the most of us? What do their purchases consist of? Compare our trade with Russia with which we have with Germany. How is the difference in amount explained?

Compare Turkey's imports with her exports. Why does this explain large debt? Why is not Switzerland a bankrupt nation since there is a balance of trade against her? Compare our trade with the country most distant from us. With that of those nearest to us. How does distance affect trade? Why has Great Britain a larger trade with these distant countries than the United States? What part of the imports of Germany, Great Britain, France, Netherlands, and Belgium come from the United States? What part of their exports do we buy? What do we buy of Mexico? Why is our trade with Russia so small? Why is our import from Austria and Argentina so large? Compare these imports with those from Belgium.

INDEX—PRONUNCIATIONS.

KEY TO PRONUNCIATION—VOWELS: *ā* in *āle*; *ā* in *senāte*; *ā* in *ām*; *ā* in *cāre*; *ā* in *ārm*; *ā* in *āsk*; *ā* in *all*; *au* in *author*. *ē* in *ēve*; *ē* in *ēnd*; *ē* in *fern*; *ē* in *they*. *ī* in *ice*; *ī* in *yll*; *ī* in *plique*. *ō* in *ōld*; *ō* in *ōdd*; *ō* in *ōr*; *ō* in *dō*; *ō* in *sōn*. *ū* in *ūse*; *ū* in *ūp*; *ū* in *ūrn*; *ū* in *rūde*; *ū* in *full*; *ua* = *wa*; *ue* = *we*. *y* in *bȳ*; *y* in *hȳm*. *ou* as in *out*; *oi* as in *oil*.

CONSONANTS: *c* or *ç* as in *can*; *ç* as in *çent* (*c* as in *can*, if unmarked); *g* as in *gō*; *g* as in *gem* (*g* as in *go*, if unmarked); *n* = nasal *n*, as in *Toulon* (like *ong*); *ŋ* = *ng*, like *ny* in *barnyard*. *qu* = *kw*. *s* as in *so*; *z* = *z*; *th* as in *this*. *Italic* letters are silent. Short vowels are not usually marked.

Geographical names are divided into syllables and place of accent is marked; but for the sake of simplicity and ease of reading, diacritical marks are often omitted when not necessary to prevent error. All index numbers refer to pages.

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Irrigation.—An illustration of what irrigation is accomplishing in arid regions of the West is furnished by the creation—on November 14 and November 21 in southern Idaho by the United States Government, on sites absolutely waste—of two new towns seven miles apart, Heyburn and Rupert, town lots being sold to highest bidders. It is expected that the great irrigating canals which the government is constructing at a cost of \$3,000,000 will make the region very productive.

The Republic of Panama lies between the Caribbean Sea and the Pacific Ocean, and extends from Costa Rica to Colombia, about 480 miles. Its area is 31,570 square miles, a little greater than that of South Carolina. It is now one of the Central American States of North America. It includes the Isthmus of Panama—the narrow portion of the state north of the Gulf of Panama; the shortest distance across is 37 miles at San Blas Bay. It has an estimated population of about 340,000, combining Spanish, Indian, and Negro elements, and a few immigrants from the United States and from European countries.

The chief towns are the capital, Panama (pop. 30,000), Colon, Porto Bello, David (pop. 9,000), and Boca del Toro.

The surface is mountainous. The greatest elevation of the Sierra de Veragua is Mount Chiriqui, an extinct volcano, 11,260 feet high.

The soil is of great fertility. The tropical vegetation is luxuriant. One of the chief products is the banana, which grows freely on the lands adjacent to the Chiriqui Lagoon. Other products



are caoutchouc, coffee, cocoa-nuts, Brazil nuts, mahogany and other woods. Cattle raising is carried on in some of the provinces, and hides are an important article of export.

The Panama Railroad crosses the Isthmus from Colon to Panama, a distance of 47 miles.

The Inter-Oceanic Canal across the Isthmus is about to be constructed by the United States, which has from the State of Panama a grant of the use of a zone five miles wide on each side of the canal route from Colon to Panama.

United States Territories, etc.—The United States now (Dec., 1905) has six "Territories"—Hawaii being the sixth.

Arizona, New Mexico, Oklahoma, and Hawaii have fully organized territorial governments, and each is represented by a delegate in Congress. Indian Territory has no general government, but maintains its tribal organizations. Alaska has a governor appointed by the President, and a judiciary system under special act of Congress, but no legislature.

Porto Rico is governed by a special act of Congress approved April 12, 1900. Under this act the lower house of the legislature

is elected by the people, but the upper house, or, more properly, the "Executive Council," is composed of officers appointed by the President.

The Philippine Islands have a Governor and Commission appointed by the President, who exercise both executive and legislative functions. The bill for civil government, passed by Congress July 1, 1902, provides for an elected Philippine Assembly in the future, which will be the lower legislative body, and for two Philippine Commissioners, who shall represent the Archipelago at the seat of government in the United States.

Guam has a governor appointed by the President.

In Tutuila, with the two other small islands of the Samoan group belonging to the United States, the naval officer in command at Pago Pago is ex-officio governor.

Earthquake and Fire at San Francisco.—On April 18, 1906, there was a destructive earthquake at San Francisco, followed instantly by fire which utterly destroyed the most valuable parts



Buildings wrecked by the earthquake. (From a photograph.)

of the city. It was the greatest calamity of its kind in the history of the United States. It is thought that about 300 persons were killed and more than 200,000 made homeless. The fire swept over a space of four square miles. Nearly all the great buildings of the city were ruined. Hundreds of millions of value were wiped out of exist-

ence. The spectacle was appalling.

As to the cause of the earthquake: Two main classes of earthquakes are recognized—(1) volcanic quakes and (2) dislocation quakes.

In the latter, when rock strata have been broken by great rifts called faults, the portion on one side of the break has either risen or fallen with reference to that on the other side. When the strain becomes too great for the sides to resist, a slip occurs. Great masses of rock move along on other masses until, with a jar almost inconceivably great, they suddenly come to rest. The vibrations spread in every direction. The San Francisco earthquake is supposed to be of the second, or dislocation, class.

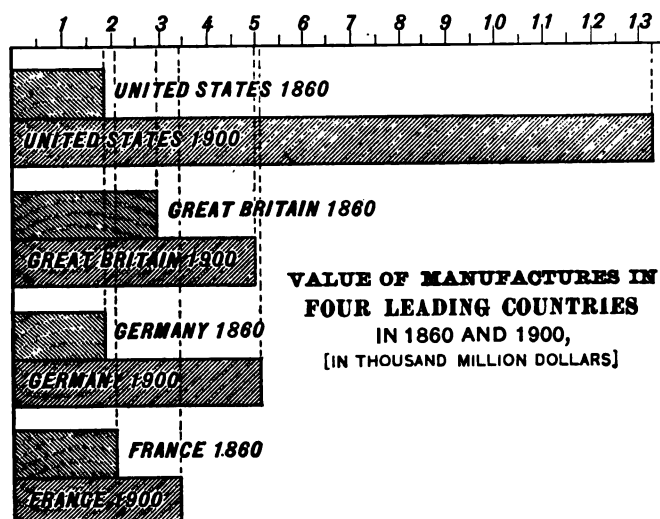


Fissures made by earthquake. (From a photograph.)

RECENT GEOGRAPHICAL EVENTS.

Our National Growth in Manufactures.—The United States is not only the greatest manufacturing country in the world, but the rate at which our industries increase is many times greater than the rate of increase in any other country.

The following diagram shows that the growth of our manufactures since 1860 has been ten times as great as in Great Britain, twice as great as in Germany, and four times as great as in France.



The United States has been long noted as the greatest agricultural country in the world. But agriculture is no longer our chief industry, and the manufactures dependent on agriculture have also taken the second place.

Find from Table I what class of manufactures exceeds all others. Find which classes depend on agriculture. On mining. On grazing. On lumbering.

TABLE I.

OUR TWENTY CHIEF MANUFACTURING INDUSTRIES AND APPROXIMATE VALUE IN 1903-4.

Iron and Steel Goods.....	\$975,000,000
Machinery and Engines.....	950,000,000
Preserved Meats (beef and pork).....	790,000,000
Lumber and Manufacturers of.....	735,000,000
Textiles (cotton, woolen, linens and silks).....	690,000,000
Clothing.....	623,000,000
Flour and Meal.....	560,000,000
Paper (including wood pulp), Stationery, Books and Newspapers....	522,000,000
Leather and Leather Goods.....	520,000,000
Cars and Vehicles.....	340,000,000
Distilled and Malt Liquors.....	334,000,000
Building Materials (brick, stone, lime, cement).....	320,000,000
Manufactures of Tobacco.....	293,000,000
Copper, Brass, and Bronze.....	254,000,000
Refined Sugar and Molasses.....	241,000,000
Lead Products.....	183,000,000
Bread and Bakery Products.....	175,000,000
Furniture and Upholstering.....	133,000,000
Butter, Cheese, and Condensed Milk.....	131,000,000
Refined Petroleum.....	124,000,000
Other Manufactures.....	4,090,000,000
Total.....	\$13,000,000,000
Cost of Raw Materials.....	7,000,000,000
Net Value of Our Manufacturing Industries.....	6,000,000,000

The rapid growth of population in our cities, shown on page xii, is due to the enormous increase in our manufactures.

An examination of Table II will show a close relation between a city's population and the value of its manufactures. Notice how many cities that lead in manufactures lead also in population.

TABLE II.

THE TWENTY-FIVE LEADING MANUFACTURING CITIES OF THE UNITED STATES, THEIR FIVE LEADING INDUSTRIES AND APPROXIMATE VALUE OF PRODUCTS IN MILLION DOLLARS. CENSUS OF 1900.

CITIES.	LEADING INDUSTRIES AND VALUE IN MILLION DOLLARS.	VALUE OF ALL INDUSTRIES.
New York.....	Clothing (206), Castings and Machinery (41), Tobacco (38), Beer (39), Books and Papers (26), Coffee and Spice Roasting and Grinding (21).....	\$975,000,000
Chicago.....	Meat Packing (249), Clothing (46), Castings and Machines (45), Agricultural Implements (25), Iron and Steel (32), Cars and Carriages (23), Books and Papers (19).....	889,000,000
Philadelphia...	Castings and Machines (38), Woolens and Worsteds (4), Carpets and Rugs (22), Leather (18), Beer (13).....	603,000,000
St. Louis.....	Tobacco and Cigars (26), Malt Liquors (12), Meat Packing (12), Castings and Machines (12), Clothing (9), Cars and Repairs, (8).....	234,000,000
Boston.....	Sugar (16), Clothing (12), Books and Papers (10), Castings and Machines (9), Beer (8).....	206,000,000
Pittsburg..	Iron and Steel (97), Castings and Machines (11), Electrical Machines (14), Beer (4), Books and Papers (3).....	203,000,000
Baltimore.....	Clothing (20), Tobacco (10), Canned Goods (8), Castings and Machines (6), Meat Packing (5).....	161,000,000
Cincinnati....	Clothing (14), Castings and Machines (12), Boots and Shoes (9), Distilled Liquors (9), Beer (6), Tobacco (5).....	157,000,000
Cleveland.....	Iron and Steel (30), Castings and Machines (15), Meat Packing (8), Beer (4), Kerosene (3).....	136,000,000
San Francisco.	Sugar (11), Castings and Machines (8), Meat Products (5), Clothing (5), Flour (4).....	133,000,000
Newark.....	Leather (11), Beer (8), Jewelry (7), Castings and Machines (6), Books and Papers (3).....	127,000,000
Milwaukee....	Castings and Machines (15), Beer (14), Leather (10), Iron and Steel (7), Flour (6).....	124,000,000
Buffalo.....	Meat Products (10), Castings and Machines (7), Cars and Carriages (6), Linseed Oil (6), Soap and Candles (4).....	122,000,000
Minneapolis...	Flour (40), Lumber (15), Castings and Machines (3), Linseed Oil (2), Brick and Stone (2).....	111,000,000
Detroit.....	Castings and Machines (9), Tobacco (6), Drugs (5), Iron and Steel (4), Meat Products (3).....	101,000,000
Providence....	Worsteds (17), Jewelry (13), Castings and Machines (9), Silverware (4), Cotton Goods (3).....	88,000,000
Kansas City...	Meat Packing (23), Soap and Candles (1), Castings and Machines (66).....	83,000,000
Louisville....	Tobacco and Cigars (14), Cotton-seed Oil and Cake (5), Meat Packing (4), Castings and Machines (3), Leather (3).....	79,000,000
Jersey City....	Tobacco (6), Meat Packing (6), Soap and Candles (2), Cars and Carriages (3), Chemicals (2).....	77,000,000
Rochester.....	Men's Clothing (11), Boots and Shoes (7), Castings and Machines (4), Flour (3), Tobacco (3).....	69,000,000
Indianapolis...	Meat Packing (13), Castings and Machines (6), Flour (4), Carriages and Cars (4), Furniture (2).....	69,000,000
New Orleans..	Sugar (23), Bags (3.4), Rice (Hulled) (3), Castings and Machines (2), Clothing (3).....	64,000,000
Allegheny City.	Iron and Steel (8), Castings and Machines (6), Pickles and Preserves (4.4), Meat Packing (4), Beer (1).....	54,000,000
Worcester....	Castings and Machines (8.5), Woolens (1.5), Wire (1.5), Boots and Shoes (1.6), Envelopes (1).....	53,000,000
Paterson.....	Silk (26), Castings and Machines (6), Beer (2), Shirts (1), Meat Packing (1.3).....	52,000,000

The Agricultural Production of the United States for the past (1905) fiscal year breaks all records for all countries.

A Six-Billion crop—\$6,415,000,000! (1) Corn—our greatest crop—reaches our largest production and highest value. (2) Hay, wheat, and rice attain their highest value. (3) No crop but corn produces as large an income as does the dairy cow; milk and butter form the items of value next to corn in making up the total. (4) Next come hay, cotton, and wheat. (5) With wheat the hen competes for precedence; poultry products aggregate about as much in value as wheat.

RECENT GEOGRAPHICAL EVENTS.

Vesuvius in Eruption.—The eruption of Vesuvius in April, 1906, seems to have been the most remarkable of all the eruptions that have occurred since the appalling disaster of 79 A. D., which overwhelmed Pompeii and Herculaneum. For ten days the mountain was in violent eruption. Many villages were overwhelmed by falling ashes and by streams of lava, some of them five hundred feet wide and forty feet deep. More than two thousand lives are reported to have been lost and many million dollars' worth of property destroyed. In Naples, twenty miles away, ashes fell in such quantities as to break the roofs of houses. Terrific explosions threw up large, incandescent rocks two thousand feet into the air. The whole summit was wreathed with flames, and a perpetual roar was heard. The cone of the volcano was encircled with electric phenomena. The top of the mountain was blown off, the present summit being some seven hundred feet lower than before the eruption.



Vesuvius, from a photograph taken during the recent eruption.

Cities of the United States having a Population of over 10,000.

Where dates are not given, the figures are from the Federal Census of 1900.

Adams, Mass.	12,486	Cincinnati, O.	325,902	Greenville, S. C.	11,860	Lynchburg, Va.	18,891	Ogden, Utah	16,313	Schenectady, N. Y. ('05)	58,369
Adrian, Mich. ('04)	10,680	Cleveland, O. (est.)	450,000	Greenwich, Conn.	12,172	Lynn, Mass. ('05)	77,042	Ordensburg, N. Y. ('05)	13,179	Scranton, Pa.	102,026
Akron, O.	42,728	Clinton, Ia. ('05)	22,756	Guthrie, Okla.	10,006	McKeesport, Pa.	34,227	Oil City, Pa.	13,264	Seattle, Wash.	150,000
Alameda, Cal.	16,464	Clinton, Mass.	13,667	Hackensack, N. J. ('05)	11,098	Macon, Ga.	23,272	Oklahoma, Okla.	10,637	Sedalia, Mo.	15,231
Albany, N. Y. ('05)	98,379	Cohoes, N. Y. ('05)	24,183	Hagerstown, Md.	13,591	Madison, Wis. ('05)	24,301	Omaha, Neb.	102,555	Shamokin, Pa.	18,202
Alexandria, Va.	14,528	Colorado Spgs., Colo.	21,085	Hamilton, O.	23,914	Mahanoy City, Pa.	13,504	Orange, N. J. ('05)	26,101	Sheboygan, Wis. ('05)	24,026
Allegheny, Pa.	129,896	Columbia, Pa.	12,316	Hammond, Ind.	12,376	Malden, Mass. ('05)	38,037	Oshkosh, Wis. ('05)	30,575	Shenandoah, Pa.	20,321
Allentown, Pa.	35,416	Columbia, S. C.	21,108	Hannibal, Mo.	12,780	Manchester, N. H.	56,987	Oswego, N. Y.	23,572	Sherman, Tex.	10,243
Alpena, Mich. ('04)	12,400	Columbus, Ga.	17,614	Harrisburg, Pa.	50,167	Manila, P. I.	350,000	Ottawa, Ill.	10,588	Shreveport, La.	16,013
Alton, Ill.	14,210	Columbus, O.	125,500	Harrison, N. J. ('05)	12,823	Manistee, Mich. ('04)	12,708	Ottumwa, Ia. ('05)	30,181	Sioux City, Ia. ('05)	40,950
Altamont, Pa.	38,973	Concord, N. H.	19,632	Hartford, Conn.	79,850	Manitowoc, Wis. ('05)	12,733	Owensboro, Ky.	13,189	Sioux Falls, S. D. ('05)	12,283
Amsterdam, N. Y. ('05)	23,943	Corning, N. Y. ('05)	13,515	Haverhill, Mass.	37,175	Mankato, Minn. ('05)	10,996	Paducah, Ky. ('05)	21,454	Somerville, Mass. ('05)	69,272
Anderson, Ind.	20,178	Council Bluffs, Ia. ('05)	25,231	Hazleton, Pa.	14,230	Man-field, O.	17,640	Parkersburg, W. Va.	11,703	South Bend, Ind.	35,999
Ann Arbor, Mich. ('04)	14,599	Covington, Ky.	42,938	Helena, Mont.	10,770	Marietta, O.	13,348	Pater-on, N. J. ('05)	37,837	South Bethlehem, Pa.	13,241
Ansonia, Conn.	12,631	Cranston, R. I. ('05)	17,570	Henderson, Ky.	10,472	Marietta, Wis. ('05)	15,384	Pawtucket, R. I.	39,231	Southbridge, Mass.	10,025
Appleton, Wis. ('05)	17,000	Cripple Creek, Col.	10,147	Hoboken, N. J. ('05)	65,468	Marion, Ind.	17,337	Peabody, Mass.	11,523	South Omaha, Neb.	26,001
Asheville, N. C.	14,694	Cumberland, Md.	17,128	Holyoke, Mass. ('05)	49,934	Marion, O.	11,662	Peekskill, N. Y.	10,358	Spartanburg, S. C.	11,395
Ashtabula, Wis. ('05)	14,519	Dallas, Tex.	42,638	Honolulu, Hawaii.	12,554	Marlboro, Mass. ('05)	14,073	Peoria, Ill.	17,747	Spokane, Wash. ('05)	96,000
Ashtabula, O.	12,949	Danbury, Conn.	16,537	Hornellsville, N. Y. ('05)	39,306	Marquette, Mich. ('04)	10,665	Pensacola, Fla.	17,747	Springfield, Ill.	34,159
Archison, Kans. ('04)	16,935	Danville, Ill.	16,354	Houston, Tex.	13,259	Marshalltown, Ia. ('05)	12,045	Peoria, Ill.	56,100	Springfield, Mass. ('05)	73,540
Athens, Ga.	10,245	Danville, Va.	16,520	Huntington, W. Va.	44,633	Massillon, O.	11,944	Perth Amboy, N. J. ('05)	25,895	Springfield, Mo.	23,267
Atlanta, Ga.	89,872	Davenport, Ia. ('05)	39,797	Huntington, W. Va.	11,923	Mayaguez, P. R.	15,187	Petersburg, Va.	21,810	Springfield, O.	38,253
Atlantic City, N. J. ('05)	37,593	Dayton, O.	85,532	Hyde Park, Mass.	13,244	Meadville, Pa.	10,291	Philadelphia, Pa. ('05)	1,438,318	Stamford, Conn.	15,997
Astoria, Mass.	11,335	Decatur, Ill.	20,754	Indianapolis, Ind.	169,164	Medford, Mass. ('05)	19,686	Phillipsburg, N. J. ('05)	13,352	Steelton, Pa.	12,086
Auburn, Me.	12,951	Denison, Tex.	11,807	Ironton, O.	11,868	Melrose, Mass. ('05)	14,295	Pine Bluff, Ark.	11,496	Steubenville, O.	14,349
Auburn, N. Y. ('05)	31,523	Denver, Col.	133,859	Ironwood, Mich. ('04)	10,019	Memphis, Tenn.	102,330	Piqua, O.	12,172	Stillwater, Minn. ('05)	12,435
Augusta, Ga.	39,441	Des Moines, Ia. ('05)	75,625	Isipeming, Mich. ('04)	11,623	Menominee, Mich. ('04)	11,096	Pittsburg, Kans. ('04)	14,368	Stockton, Cal.	17,506
Augusta, Me.	11,683	Detroit, Mich. (est.)	400,000	Ithaca, N. Y. ('05)	14,615	Meriden, Conn.	24,296	Pittsburg, Pa. ('04)	321,616	Streator, Ill.	14,079
Aurora, Ill.	24,147	Dover, N. H.	13,207	Jackson, Mich. ('04)	25,300	Meridian, Miss.	14,020	Pittsfield, Mass. ('05)	25,001	Superior, Wis. ('05)	36,557
Austin, Tex.	22,258	Dubuque, Ia. ('05)	41,941	Jackson, Tenn.	14,511	Michigan City, Ind.	14,830	Pittsfield, Pa.	12,556	Syracuse, N. Y. ('05)	117,498
Baltimore, Md. ('05)	545,000	Duluth, Minn. ('05)	64,542	Jacksonville, Fla.	28,429	Middletown, N. Y. ('05)	14,516	Plainfield, N. J. ('05)	18,468	Tacoma, Wash. ('05)	70,000
Bangor, Me.	21,850	Dunkirk, N. Y. ('05)	15,251	Jacksonville, Ill.	15,078	Millford, Mass.	11,376	Plymouth, Pa.	13,649	Tampa, Fla.	15,839
Bath, Me.	10,477	Dunmore, Pa.	12,583	Jamestown, N. Y. ('05)	26,160	Millville, N. J. ('05)	11,884	Ponce, P. R.	27,952	Taunton, Mass. ('05)	30,967
Baton Rouge, La.	11,269	E. Liverpool, O.	16,485	Jeffersonville, Ind.	13,770	Millwaukee, Wis. ('05)	312,948	Pontiac, Mich. ('04)	10,884	Terre Haute, Ind.	36,673
Battle Creek, Mich. ('04)	22,213	Easton, Pa.	25,298	Jersey City, N. J. ('05)	10,774	Minneapolis, Minn. ('05)	361,074	Port Huron, Mich. ('04)	20,028	Tiffin, O.	10,989
Bay City, Mich.	27,628	E. Orange, N. J. ('05)	25,175	Johnstown, N. Y.	10,130	Mobile, Ala.	38,469	Portland, Me.	50,145	Toledo, O.	131,822
Bayonne, N. J. ('05)	42,362	E. Providence, R. I. ('05)	13,750	Johnstown, Pa.	35,936	Moline, Ill.	17,248	Portland, Ore.	90,436	Topka, Kans. ('04)	39,149
Beaver Falls, Pa.	10,054	E. St. Louis, Ill.	29,655	Johnstown, Pa.	29,353	Montclair, N. J. ('05)	16,370	Portsmouth, N. H.	10,637	Traverse, Mich. ('04)	11,237
Bellefonte, Pa.	17,484	Eau Claire, Wis. ('05)	18,737	Joliet, Ill.	26,023	Montgomery, Ala.	30,346	Portsmouth, O.	17,870	Trenton, N. J. ('05)	84,180
Beloit, Wis. ('05)	12,855	Elgin, Ill.	22,432	Joplin, Mo.	26,023	Morrisstown, N. J. ('05)	12,146	Portsmouth, Va.	17,427	Troy, N. Y. ('05)	76,861
Berkeley, Cal.	13,214	Elizabeth, N. J. ('05)	60,509	Kalamazoo, Mich. ('04)	29,782	Mt. Carmel, Pa.	13,179	Pottsville, Pa.	13,696	Union, N. J.	15,187
Beverly, Mass. ('05)	15,223	Elkhart, Ind.	15,184	Kankakee, Ill.	13,595	Mt. Vernon, N. Y. ('05)	25,006	Pottsville, Pa.	15,710	Utica, N. Y. ('05)	62,935
Biddeford, Me.	16,145	Elmira, N. Y. ('05)	34,693	Kansas City, Kans. ('04)	57,710	Muncie, Ind.	20,942	Poughkeepsie, N. Y. ('05)	25,379	Vicksburg, Miss.	14,843
Binghamton, N. Y. ('05)	42,040	El Paso, Tex.	15,906	Kansas City, Mo.	163,752	Muscatine, Ia. ('05)	15,087	Providence, R. I. ('05)	198,635	Vincennes, Ind.	10,249
Birmingham, Ala.	38,415	Elwood, Ind.	12,950	Kearney, N. J. ('05)	13,601	Muskegon, Mich. ('04)	20,837	Pueblo, Colo.	28,157	Waco, Tex.	20,686
Bloomfield, N. J.	11,668	Erle, Pa.	52,733	Kenosha, Wis. ('05)	16,235	Nanticoke, Pa.	12,116	Quincy, Ill.	30,252	Walla Walla, Wash.	25,000
Bloomington, Ill.	23,286	Escanaba, Mich.	11,098	Keokuk, Ia.	14,604	Nashua, N. H.	23,898	Quincy, Mass. ('05)	28,076	Waltham, Mass. ('05)	26,282
Boston, Mass. ('05)	595,880	Evanston, Ill.	19,259	Key West, Fla.	17,114	Nashville, Tenn.	80,865	Racine, Wis. ('05)	32,270	Warwick, R. I. ('05)	24,773
Braddock, Pa.	15,654	Evansville, Ind.	59,007	Kingsport, N. Y. ('05)	25,557	Natchez, Miss.	12,210	Raleigh, N. C.	13,643	Washington, D. C. ('05)	323,123
Bradford, Pa.	15,029	Everett, Mass. ('05)	29,111	Knoxville, Tenn.	32,637	Naugatuck, Conn.	10,541	Reading, Pa.	78,961	Waterbury, Conn.	45,859
Bridgeton, Conn.	70,996	Fall River, Mass. ('05)	105,762	Kokomo, Ind.	10,609	New Albany, Ind.	20,628	Revere, Mass.	10,395	Waterloo, Ia. ('05)	18,071
Bridgeton, N. J. ('05)	13,634	Findlay, O.	17,613	La Crosse, Wis. ('05)	18,116	Newark, N. J. ('05)	283,289	Richmond, Ind.	18,226	Watertown, N. Y.	25,447
Brooklyn, Mass.	47,794	Fitchburg, Mass. ('05)	35,021	Lafayette, Ind.	18,116	Newark, O.	18,157	Richmond, Va.	85,050	Watervliet, N. Y. ('05)	14,600
Brookline, Mass.	19,935	Flint, Mich. ('04)	64,884	Lancaster, Pa.	41,459	New Bedford, Mass. ('05)	74,362	Roanoke, Va.	21,495	Wausau, Wis.	12,354
Buffalo, N. Y. ('05)	376,619	Fond du Lac, Wis. ('05)	17,234	Lansing, Mich. ('04)	20,276	New Britain, Conn.	23,998	Rochester, N. Y. ('05)	181,078	W. Bay City, Mich. ('05)	14,456
Burlington, Ia. ('05)	25,318	Fort Dodge, Ia. ('05)	14,399	Laredo, Tex.	13,429	N. Brunswick, N. J. ('05)	23,133	Rockford, Ill.	31,051	Westfield, Mass.	12,310
Burlington, Vt.	18,640	Fort Scott, Kans. ('04)	14,081	La Salle, Ill.	10,446	Newburg, N. Y. ('05)	26,500	Rock Island, Ill.	19,493	W. Hoboken, N. J. ('05)	29,082
Butler, Pa.	10,853	Fort Smith, Ark.	11,587	Lawrence, Kans.	10,862	Newburyport, Mass. ('05)	14,675	Rome, N. Y. ('05)	16,567	Weymouth, Mass.	11,324
Butte, Mont.	30,470	Fort Wayne, Ind.	45,115	Lawrence, Mass. ('05)	70,050	Newcastle, Pa.	28,339	Rutland, Vt.	11,499	Wheeling, W. Va.	38,878
Calro, Ill.	12,566	Fort Worth, Tex.	29,688	Leavenworth, Col.	12,455	New Haven, Conn.	108,027	Sacramento, Cal.	109,027	Wichita, Kans. ('04)	31,857
Cambridge, Mass. ('05)	97,434	Framingham, Mass.	11,392	Leavenworth, Kan. ('01)	12,791	New London, Conn.	17,548	Saginaw, Mich. ('04)	46,610	Wilkesbarre, Pa.	51,721
Camden, N. J. ('05)	83,363	Freeport, Ill.	13,258	Lebanon, Pa.	17,628	New Orleans, La. (est.)	350,000	St. Joseph, Mo.	102,979	Wilkesburg, Pa.	11,886
Canton, O.	30,667	Fresno, Cal.	12,470	Leominster, Mass.	12,392	Newport, Ky.	28,301	St. Louis, Mo. (est.)	700,000	Williamsport, Pa.	28,757
Carbondale, Pa.	13,536	Galena, Kans.	10,155	Lewistown, Me.	23,761	Newport, R. I. ('05)	25,039	St. Paul, Minn. ('05)	197,023	Wilmington, Del.	76,508
Cedar Rapids, Ia. ('05)	28,759	Galesburg, Ill.	18,607	Lexington, Ky.	28,369	Newport News, Va.	19,635	Salem, Mass. ('05)	37,627	Wilmington, N. C.	20,976
Central Falls, R. I. ('05)	19,446	Galveston, Tex.	37,789	Lima, O.	21,723	New Rochelle, N. Y. ('05)	20,480	Salt Lake City, Utah.	53,531	Winona, Minn. ('05)	20,334
Charleston, S. C.	55,807	Gardner, Mass.	10,813	Lincoln, Neb.	40,169	Newton, Mass. ('05)	36,837	San Antonio, Tex.	53,321	Winston, N. C.	10,008
Charleston, W. Va.	11,099	Geneva, N. Y. ('05)	12,250	Little Falls, N. Y. ('05)	11,123	New York, N. Y. ('05)	4,014,304	San Diego, Cal.	17,700	Woburn, Mass. ('05)	14,402
Charlotte, N. C.	18,991	Georgetown, D. C.	14,549	Little Rock, Ark.	38,307	Niagara Falls, N. Y. ('05)	26,559	Sandusky, O.	19,664	Woodbridge, N. Y. ('05)	10,221
Chattanooga, Tenn.	30,154	Glens Falls, N. Y.	12,613	Lockport, N. Y. ('05)	17,552	Nome, Alaska.	12,496	San Francisco, Cal.	342,782	Woonsocket, R. I. ('05)	32,196
Chelsea, Mass. ('05)	37,289	Gloucester, Mass. ('05)	26,001	Logansport, Ind.	16,204	Norfolk, Va.	46,624	San Jose, Cal.	21,500	Worcester, Mass. ('05)	128,125
Chester, Pa.	33,988	Gloversville, N. Y. ('05)	18,692	Long Branch, N. J. ('05)	12,183	Norristown, Pa.	22,295	San Juan, P. R.	32,048	Yonkers, N. Y.	61,716
Cheyenne, Wyo.	14,087	Gr'd Rapids, Mich. ('04)	95,718	Lorain, O.	16,028	No Adams, Mass. ('05)	22,150	Saratoga Spgs., N. Y.	13,534	York, Pa.	33,708
Chicago, Ill. (est.)	2,000,000	Great Falls, Mont.	14,930	Los Angeles, Cal.	103,479	Northampton, Mass. ('05)	19,957	Sault Ste. Marie, Mich.	11,442	Youngstown, O.	44,885
Chicopee, Mass. ('05)	20,191	Green Bay, Wis. ('05)	22,854	Louisville, Ky. ('05)	232,456	Norwich, Conn.	17,251	Savannah, Ga.	54,244	Zanesville, O.	23,538
Chillicothe, O.	12,976	Greensboro, N. C.	10,035	Lowell, Mass. ('05)	94,889	Oakland, Cal.	66,960				

LESSONS IN COMMERCIAL GEOGRAPHY.

the Teacher.—The following paragraphs contain a review of those in the text that relate to production and trade, with enough new material to make each a complete lesson unit. The Roman numerals refer to lessons, Arabic to paragraphs and pages. The index will be found especially in finding material bearing on the lesson. Production and trade made by the pupil are the best means of teaching these subjects. Maps are therefore given and material from which original maps may be made. The lessons provide for a year's course in commercial geography.

Production.—(Review XVII.) What things do all men

How do men secure them? Name some of them that are produced by agriculture; such articles are called "agricultural products." Name some articles that we get by mining; they are called "mineral products." Name some articles that we get from forests; these are called "forest products." When agricultural, mineral, and forest products are made up into new forms, these are called "manufactured" products. Name some of them and tell from what they were made.

Look up all the countries of the world that you have studied; find the great stores of our cities, and you will see how great is the number and variety of things that men produce by labor and industry. You will also notice that the products of one country are very different from those of another. Name some agricultural products that are not produced in the United States; some mineral products; some forest products; some manufactured products. Can you explain why each of these is not produced in our country?

Written Work.—Make a list of twenty-five articles produced in the United States, classify as agricultural, mineral, forest, or manufactured product and tell in what part of the country each is produced.

Commerce.—It takes many men to produce all the things the world needs. No one man can produce all the things he himself needs, and few men need all the things that themselves can produce. So it happens that men sell their own productions that they do not need and buy of others the productions that they do need. This buying and selling of products is going on all over the world and it makes commerce, or trade.

Transportation (pp. 65, 68). The products which a man sells are sent to places where they are needed. The products he buys must be brought from places where they may be found. This carrying of products from one place to another is "transportation."

Transportation is very important because without it there can be no commerce. A man would not buy coal in Pennsylvania, cotton in Texas, or iron in Montana, unless he could transport these things to places where they can be used or sold. Those who carry goods for us must be paid. You will see that what we pay for transportation makes goods cost more and that commerce makes low prices and helps commerce.

The parts of this book which we have completed we have learned the names and location of the different countries of the world; we have studied their mountains, rivers, and climates; we have learned also some things about the people of each country, their occupations, and the products of their labor. We are now to make a special study of the products that we produce at home and to other countries, of those we buy at home from other countries, and of their trade with one another. This makes up the world's commerce. This study is called Commercial Geography."

Written Work.—1. Write a paragraph on methods of transportation in use in different countries (see index under transportation). 2. Make a list of three classes of people engaged in production, three in trade, and three in transportation, and describe what each one does.

NORTH AMERICA.

3. North America ranks next Europe in the value of its productions and commerce. This is partly due to soil, climate, navigable rivers and good harbors, and partly to the genius and enterprise of its people.

(Review Map Studies, p. 18.) What natural wealth do you find in the Pacific Highland? In the Laurentian Highland? Along the Atlantic Coast? In the Great Central Plain? In the Coastal Plains? What is the climate of the northern part of the continent? Of the southern part? Of the central part? Which part is most productive? Give reasons. Study the position of the rivers and lakes of North America (pp. 19-20). Which coast of the continent has the greatest trade? Why? Trace two great natural highways by which the products of the Great Central Plain may reach the coast.

The Atlantic Coast has many navigable rivers that lead far into the productive parts of the continent; it has better harbors than the western coast and is nearer to Europe, the chief market for American products. How would each of these facts affect the business and trade?

What people live in the northern part of the continent? What do they produce? What do you think of the value of their commerce? What people live in the southern part? What goods do they have to sell? The central part has about twenty times as many goods to sell as both the northern and southern parts together. How can this be explained?

Written Work.—1. On outline map of North America locate the chief natural divisions and largest lakes and rivers. 2. On similar map write the leading animal, vegetable and mineral productions of the continent.

4. **The United States: Size, Situation, Resources.**—Show the advantages of the position of the United States in North America (XXI, 1-2). What is its size? What are the chief products of each section of the Atlantic Plain (XXI, 7)? Of the Gulf Plain? Of the Mississippi Valley? Of the Pacific Highland? Of the Pacific Slope (XXI, 8, 12, 18)? Compare the products of the Mississippi Valley with those of the Pacific Highland; compare their climates. Turn to map (pp. 24, 25), and locate the following: forests, coal, iron, lead, copper, gold, silver, corn and wheat, phosphates, fruits, petroleum, cattle, sheep, and fish.

Written Work.—1. On outline map of the United States locate each of the natural divisions and write in each the leading products. 2. Draw the leading lakes, rivers, and canals (p. 66).

5. **Settlement; Government; Civilization.**—By what nations was our country settled (xxii, 3)? Describe its growth (XXII, 4). Population, and rank in wealth and civilization (XXII, 5, 6). How is it governed (XXIII)?

The development of the country has been greatly aided by immigrants from foreign countries at the rate of more than a half million a year. About one-third of these are skilled laborers—engineers, miners, carpenters, tailors, shoemakers, and others. Most of the rest are unskilled laborers. They have done much of the work on our railroads, tunnels, canals, and on the buildings in our great cities. We have great public school systems, state agricultural colleges, and many industrial and technical schools, as well as many private schools, colleges, and a number of great universities. All of these help to make good and useful citizens of our children and of the children of these foreigners who come to our land, and to give us our high rank in civilization.

What are the chief occupations among civilized nations? Among sav-

ages? Among nomadic, or wandering, races? Among half-civilized peoples? What are the leading occupations in the United States? How does education help a person in his occupation? Do you think we make better goods because of education? How does education improve our trade and ways of transportation?

Written Work.—1. Describe four stages of civilization, speaking of occupations, and trade, and giving examples of nations in each stage. 2. Write a paragraph on Causes of Immigration to the United States (U. S. History).

6. The United States; Rank and Industries.—The United States produces more salable articles than any other nation. Name our six leading industries in order of value (Fig. 1). It also has more money in its banks than any other nation. This money belongs to the people; some of it is loaned to business men, and to city and state governments to carry on the business of the country, and to build great public works. The name "capital" is given to money which is thus invested in mills, factories, buildings, machinery, railroads, and other things which are used to produce more wealth. Vast amounts of capital are needed to carry on the business of the country, and it is the possession of capital that makes London, New York, and such great cities the great business centers of the world.

Eleven-twelfths of our products are consumed at home. The working people here live in better houses, eat better food, and wear better clothes

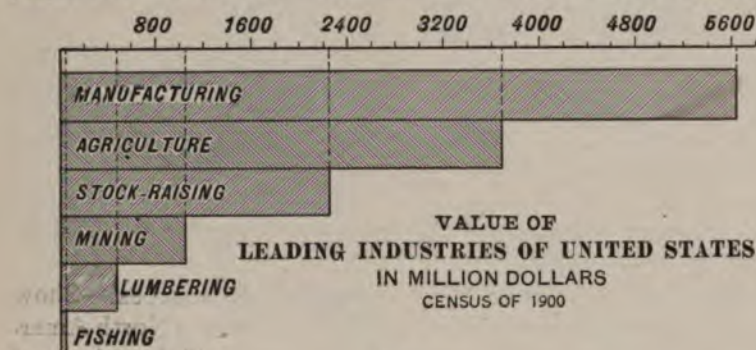


FIG. 1.

than in any other land. This is because wages are higher; and wages are higher because our industries are more profitable than in other countries. In shipping and foreign trade we rank lower than Great Britain and Germany, but in domestic trade and internal communication we are far in advance of them. At present much money and energy is being used to increase our merchant marine, as the ships carrying goods to and from our seaports are called. Why is this important? In what part of the country are agriculture, grazing, mining, manufacturing, and fishing mainly carried on (Review XXIV)? How does foreign commerce rank with other industries?

Written Work.—Write on any industry named in Fig. 1, describing its location and reasons therefor.

7. Wheat.—Agriculture is really our most important industry because it furnishes many raw materials for our manufactures. Flour could not be had without wheat, nor cloth without cotton, wool or other fiber. Of all our farm products, the grains, or "cereals," are the most valuable. They are the seeds of certain cultivated grasses, growing in all climates, from the Equator to the Arctic Circle. Grain, flour, and meal are called, in commerce, "breadstuffs." Wheat is "King of the Cereals." It grows best in rich, loamy soil, in a cool, moderately dry climate, and requires about three months to ripen. It is called "spring" or "winter" wheat according as it is planted in the spring or fall. In mild, dry climates the seed becomes much harder when ripe than in cool, moist climates. The best flour is made by mixing "hard" and "soft" wheat. Macaroni and

other similar foods are made from "hard" wheat. Wheat contains much of a sticky substance called "gluten," which holds the gases that cause bread to "rise"; thus wheat bread can be made "light." The world's wheat crop is about two bushels apiece for the world's people.

A bushel of wheat will make forty-five pounds of flour. If ten ounces of flour make a loaf of bread, how many loaves a year will the United States

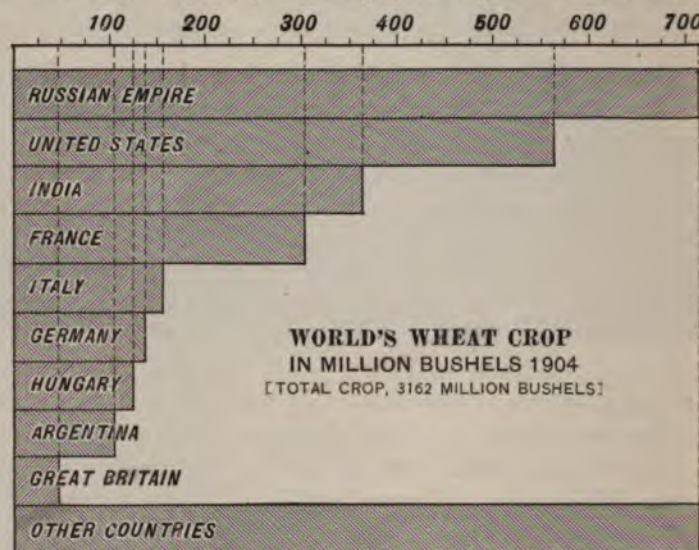


FIG. 2.

crop make for each person (Fig. 2)? How many will the crop of Great Britain make? Which nation can best sell to the other? Why might an increase in our population make our export of wheat less? About one-third of our wheat crop is exported as grain or flour to Europe. Find what nations buy it (Table II).

Written Work.—1. Write a paragraph about the wheat crop of the world, using Figure 2. 2. On an outline map of the United States indicate by color or shading the states or parts of states producing wheat.

8. Corn, or maize, needs five months of warm weather to make a good crop. Does it probably grow best north or south of the wheat region? What people first raised corn? What name did they give it? In this country much corn is eaten in the form of bread or meal, but it is chiefly used for feeding cattle and hogs. Which of the Central States (XXXVI) lead in corn, beef, and pork? Thousands of cattle are every year driven north from the grazing regions to be fattened in the corn belt. In what forms that you know do we eat corn? Cornstarch, glucose (a kind of cheap sugar), whiskey, and alcohol are made from corn. What States

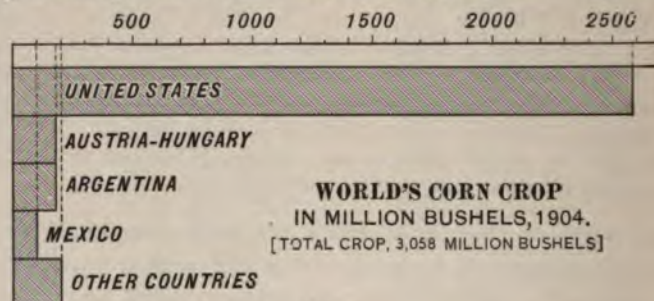


FIG. 3.

would be likely to make these articles? Corn is sown to produce fodder for milch cows. The stalks are sometimes chopped when green and kept fresh by storing them in "silos," or air-tight rooms. The corn thus kept is called "ensilage."

Written Work.—1. Find, by reference to Table VII, what States produce corn, and on an outline map show the corn-growing region of our country. 2. Write a paragraph on the world's production of corn, using Figure 3.

9. Other Grains.—*Rye* is largely used as a food in Europe, but in this country chiefly for making whiskey. It grows on poorer soil than wheat or corn, and hence is raised in districts in the wheat belt where wheat cannot be profitably grown. About one-sixth of our small crop is exported to the countries of Northern Europe. Find the amount of our rye crop (Fig. 35). How does it compare with that of Russia? Of Germany? The greater part of our *oat* crop is fed to horses. Trade in oats is slight compared with the immense size of the crop, for oats are cheap and bulky to transport. For this reason they are grown in countries where they are needed. They grow in a colder climate than wheat. The increasing use of oatmeal for food has much decreased our export of oats. *Barley* is used mainly in making beer. Almost our entire crop is so used, but in Northern Europe it is used also for bread and for feeding horses. It will grow in a greater variety of soil and climate than any other grain. It ripens in a shorter time than even the hardest kind of oats. Hence it can be raised on high moun-

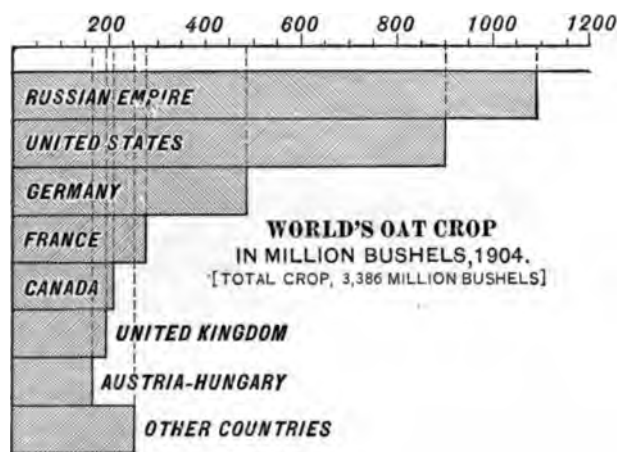


FIG. 4.

tains, and within the Arctic region. The malt remaining after straining off the beer is fed to cattle. A small part of our barley is exported to the beer-making countries of Europe. *Rice* grows best in the warm belt. The United States raises about 300,000 tons of rice annually, and imports about one-fourth as much from Asia.

Written Work.—1. Find, from Table VII, where oats, rice, barley and rye are grown in this country, and print the names of these grains on an outline map. 2. Write a paragraph on the world's production of oats or barley from Figures 4, and 34.

10. Textile Fibers are those that are used for making cloth. Cotton, wool, silk, and flax supply clothing for nearly all mankind. *Cotton*, because it is easily grown and manufactured, is cheap, and hence it is more used than the other three fibers combined. Describe the climate in which cotton is grown; the picking and the manufacture of cotton, (XXX, 7).

The greater part of our cotton is "Upland" cotton with a fiber about one and a half inches long. Describe "Sea Island" cotton (index). Egyptian and Peruvian cotton are long staple. What is the Indian cotton (index)? About one-third of our crop is spun and woven at home. The rest goes to the manufacturing countries of Europe. Describe our trade in cotton (Tables III and IV). What machines are used in cotton manufacture? Why do we import cotton? For delicate fabrics, such as laces and fine muslins, the long-fiber cotton is necessary, as it makes a fine, strong thread. Also, where great strength is required, as in the canvas webbing for bicycle tires, a long and coarse fiber, such as the Peruvian cotton supplies, is best. This explains why we import cotton although our own crop is so large.

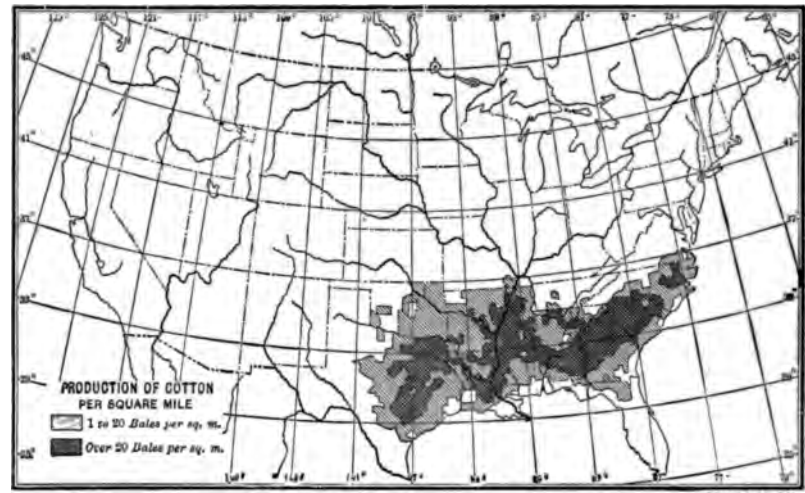


FIG. 5.

Written Work.—1. Mark on an outline map of the United States the cotton-growing States. 2. From Fig. 8 and from the text book make a list of the cotton-growing regions and color these regions on a map of the world.

(Other fibers will be studied in connection with the countries that lead in their production.)

11. Forests and Lumber Products.—The forest regions from which most of the lumber of commerce is cut form a great belt in the northern half of the North Temperate Zone. Find these regions and trace on the physical maps the northern limit of trees. The trees of the northern belt are mainly "soft" woods, such as white pine, fir, spruce, and cedar. They are easily worked and much used in building. Further south are hardwood trees, such as the oak, birch, walnut, maple and ash. Where do we find the cypress, cottonwood, palmetto, and hard pine (pp. 24, 25)? In tropical countries are found the hard "cabinet" woods. They are the most valuable, and are used for furniture and ornamental purposes. What varieties occur in Mexico? Central America? Brazil? West Indies (physical maps)? What peculiar woods are found in Ceylon? Madagascar? India? New Zealand? Australia? Japan (physical maps)?

Many of the greatest forests of the world, such as those of equatorial Africa and Siberia are yet little explored. The forests of the United States have been wastefully used, and do not supply the home demand. From what country do we get lumber (Table IV)? Wood is sold in the form of timber (logs), lumber, and lumber products, such as doors, sashes, and other forms used in building, furniture, barrel-staves and heads, woodenware, and vehicles.

Ohio and Illinois lead in the making of agricultural implements because they are in the hard-wood region, and in the

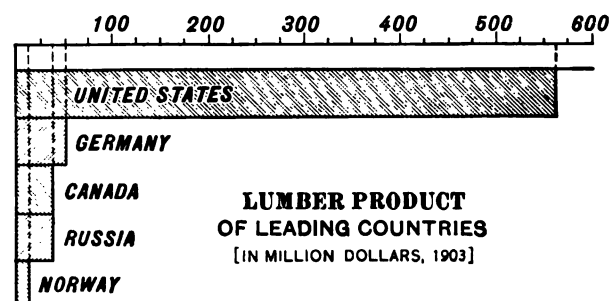


FIG. 6.

great farming region. What cities are noted for this work (Table II)? Lumber, building supplies, barrels and wood-pulp are made near the saw-mills on the edge of the forests. Furniture factories have grown up in New York, Philadelphia and Chicago because these cities are good markets; those of Grand Rapids are due to nearness to hard-woods.

Written Work.—1. Consult physical map, pp. 24, 25, and shade on an outline map of the United States the forest regions. 2. From Fig. 9 write a paragraph on lumber production of the world.

12. Other Forest Products.—Besides lumber and its manufactures there is a vast number of useful articles derived from the forests. The tanning of leather depends upon forest products (index, *bark, gambier, valonia*). About a million tons of newspaper are made in this country annually from wood-pulp. The rubber from the world's tropical forests is worth hundreds of millions of dollars yearly. Drugs, dyewoods, gums, resins, barks, and oils are made from forest products. Cork, quinine, gum-arabic, gutta-percha, amber, camphor, potash, myrrh, and lacquer

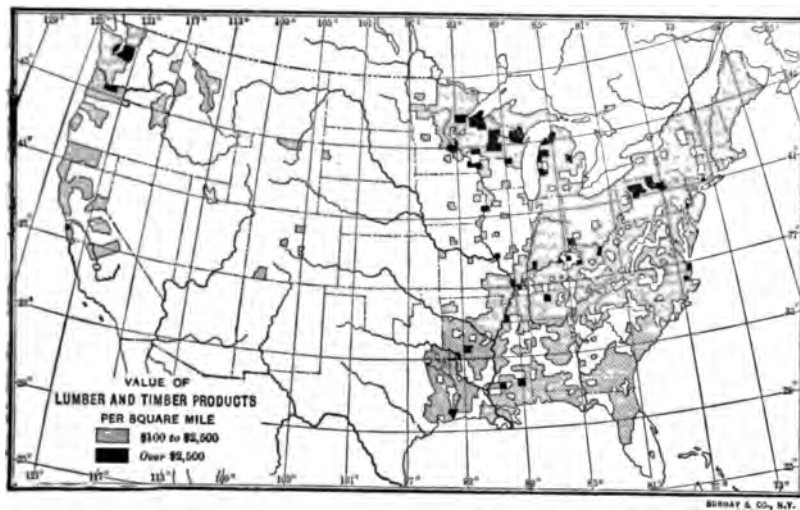


FIG. 7.

come from trees. Where is each of these obtained (see index)? Give their uses. How are naval stores obtained (XXXI)? What peculiar forest product comes from Louisiana (XXXIV, 3)? (Consult index under *logwood, indigo, madder* and other articles named above.) Copal, and kauri gum are used in making varnishes. Shellac is an important gum brought from India; it dries quickly, forming a waterproof coating, and is used to make sealing wax and as a varnish. Gutta-percha is indispensable for coating electric cables to be used under water. Rosin is used in making varnishes and soaps. What are the uses of tar, pitch and turpentine (XXXI)?

Written Work.—1. Make a list of articles made of rubber. 2. From the physical maps of the continents make list of twenty-five forest-products, giving sources and uses.

13. Tobacco grows in both cool and hot climates all over the world. The United States raises over one-third of the world's supply. Where was tobacco first used? Who can tell something of the early history of the tobacco industry in this country? The flavor and value of tobacco depends upon the soil and climate in which it grows. The Cuban variety is a favorite for cigars; Turkish and Egyptian for cigarettes; the "Perique" of Louisiana for smoking; the fine, large leaf of Connecticut is used for cigar wrappers. Over two-thirds of our crop is exported

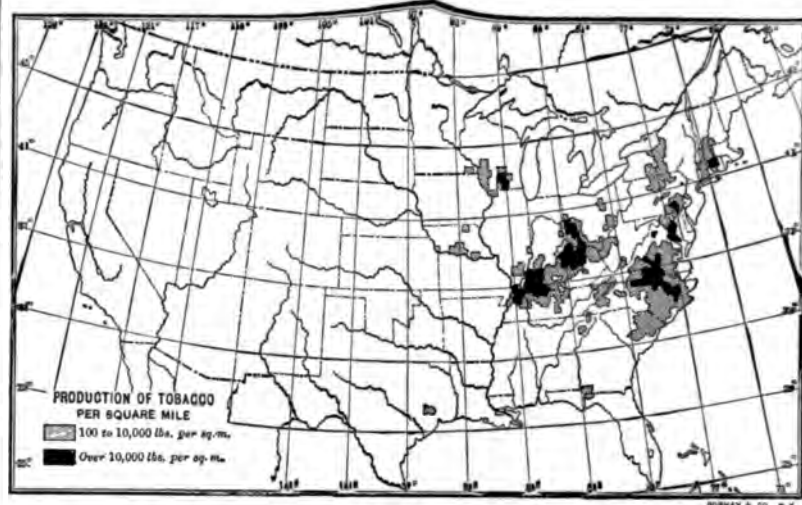


FIG. 8.

in the form of smoking and chewing tobacco to all parts of the world. But we buy, chiefly from Cuba and Sumatra, about half as much as we sell. The Cuban crop is less than one-tenth of ours in *pounds*, but equal to two-thirds of it in *value*.

Written Work.—1. On an outline map of the United States indicate, by shading, the tobacco-growing States. 2. Locate on the same map the leading tobacco-manufacturing cities.

14. Fruits and Vegetables are important articles in both our foreign and domestic trade. The Pacific slope has become one of the great fruit regions of the world. What are the leading varieties (XLIII, 4)? What fruits does Florida produce (XXXIII)? Where are apples and peaches grown (index)? Early fruits and vegetables are raised in vast quantities along the Atlantic and Gulf Coasts to supply the large cities. Fast freight lines with refrigerator cars distribute the fruits and vegetables of California and the South to all parts of the country, supplying the large cities through the entire year.

Many small fruits and vegetables are grown under glass during the winter, thus maintaining a continuous supply for the city markets. Where are wine and raisins produced (index)? Apples are the only fresh fruit exported by us to any extent. Other fruits are preserved by drying and canning, and in this form are sent abroad. What is the value of our fruit export (Table III)? To what countries is it sent? What fruits do we import? From what countries (Table IV)? Potatoes and onions are the only vegetables imported in large quantities. Where do we obtain them (XLVIII)?

Written Work.—1. Make a list of fresh fruits and vegetables seen at a grocery store. 2. Make a list of the *preserved* fruits that you might buy at the grocer's. 3. On an outline map of the United States indicate by colors the several fruit-growing regions.

15. Stock-Raising.—The raising of the domestic animals—the horse, cow, sheep, etc.—is an important industry in many countries. A mild, dry climate favors especially the raising of cattle and sheep as it enables these animals to feed out of doors through the winter and save the expense of providing food and shelter.

The Western Plains of the United States have all these advantages and support many millions of cattle and sheep. The natural "buffalo" and "bunch" grasses are nutritious food even when dried by the hot summer or buried under the snow. The cattle raised in these grazing-regions and fattened in the corn belt are the best in the world. Many of them are shipped alive to Great Britain and the West Indies, but the larger number are sent to the great meat-packing centers. Sheep are mainly raised for their wool, but several millions are annually killed for mutton.

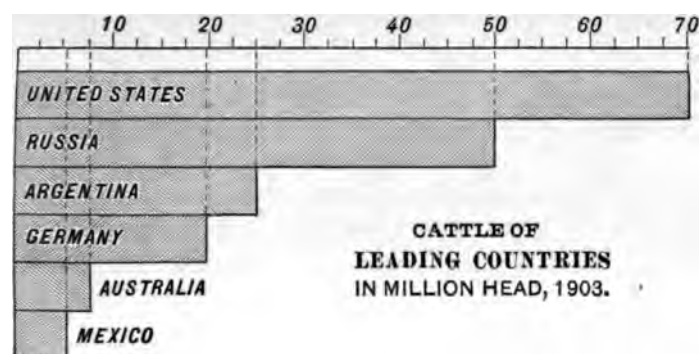


FIG. 9.

Horses, mules, and milch cows are raised mainly in the rich agricultural states as they need to be kept in barns and fed during cold and wet weather. Hogs feed naturally on grass, nuts, and acorns, but they must be fattened on corn to make the best pork. Much attention is given on stock farms to breeding cattle for beef or milk. In the same way horses are bred for speed or strength, sheep for mutton or wool, and hogs for pork. The finest mutton is produced in England, where stock-raising is most skilfully carried on.

From Table VII find whether the states that lead in corn lead also in hogs. What states lead in horses? How do these states rank in other farm products? What states lead in cattle and sheep? What is the climate of these states? Their rank in other farm products? From Fig. 9 find the great cattle-raising countries. How do they compare with the Western Plains in climate?

Written Work.—1. On outline map of the United States show by shading the states leading in cattle. 2. Show those leading in sheep, horses, or hogs.

16. "Provisions" is the commercial name given to mutton, beef, and pork products, butter, cheese, and milk. How do they rank in value with our other productions (Table I)?

The United States exports twice as much meat as all the rest of the world combined. Since the invention of refrigerator cars, dressed beef has become an important article of trade. It is sent from the slaughter houses of Chicago, Kansas City, and St. Louis to all parts of this country and of Europe. The best Argentine beef, also, is sent frozen to Europe, but the poorer quality is prepared for sale to tropical countries by drying and smoking. We eat most of our mutton, but beef, hams, bacon, pork, and lard are exported yearly from this country to the value of a hundred million dollars. Name some meat-packing centers (Table II). In these centers the slaughter houses are near the stock-yards where the animals are unloaded from the trains. Each set of men does only one part of the work. The hog passes rapidly along a carrier, and is bled, scalded, scraped, cleaned, cooled, and placed in cars, or it is cut into hams, pork, and bacon, each going to a separate room to be cured, packed and shipped. In some cases this work goes



FIG. 10.

on at the rate of a "hog a minute." Cattle and sheep are handled with equal swiftness.

The refuse is made into fertilizers; hides are sent to tanneries to be made into hair and leather; hoofs furnish gelatine and oil; bones, horns, and tails are used. Not a particle goes to waste.

Cheese and milk factories and creameries are usually small and are scattered over the country near railroad stations, where milk can be quickly obtained, and the products cheaply shipped. An oil called "oleo" is made from the fat of cattle, and is largely exported to Holland, Belgium, and Denmark, where it is made into oleomargarine, a substitute for butter.

Written Work.—1. Indicate by color on an outline map of the United States the chief stock-raising states. 2. Place on the above map the leading shipping points and meat-packing centers (consult index under *cattle, sheep, beef, pork*, etc.).

17. Our Mineral Wealth exceeds that of any other country. What is our rank in coal, iron, copper, gold, and silver (Figs. 11-17)? In what section is each of these found (physical map)? These minerals have added greatly to our wealth. Coal furnishes fuel, and iron machinery for our factories; copper, mercury, tin, and lead are used in the arts. Gold and silver give us millions of dollars every year for use as money. Tin and lead are largely imported. Sulphur, nitrates, and many other chemicals also are imported (index). But a long list of minerals, such as clay, limestone, cements, fertilizers, such as gypsum, phosphate, stone for grinding and polishing, and building stones—from the choicest marbles to the hardest granites, are found in abundance. What states produce lead? Sulphur? Phosphates? Whence do we obtain tin? Lead? Sulphur? Nitrates (index)? What kinds of building stone can you name? Where is each found (index)? What other useful minerals can you name?

Written Work.—1. On outline map of United States write in each state its leading minerals. 2. From Figs. 11-17 write a paragraph comparing the United States with other countries as to mineral wealth.

18. Iron and Coal.—The presence of iron may be observed in many places by the reddish color which it gives to rocks and soil. This red substance is oxide of iron, or "iron rust." When rock contains 60% of iron it is called "ore" and can be profitably mined.

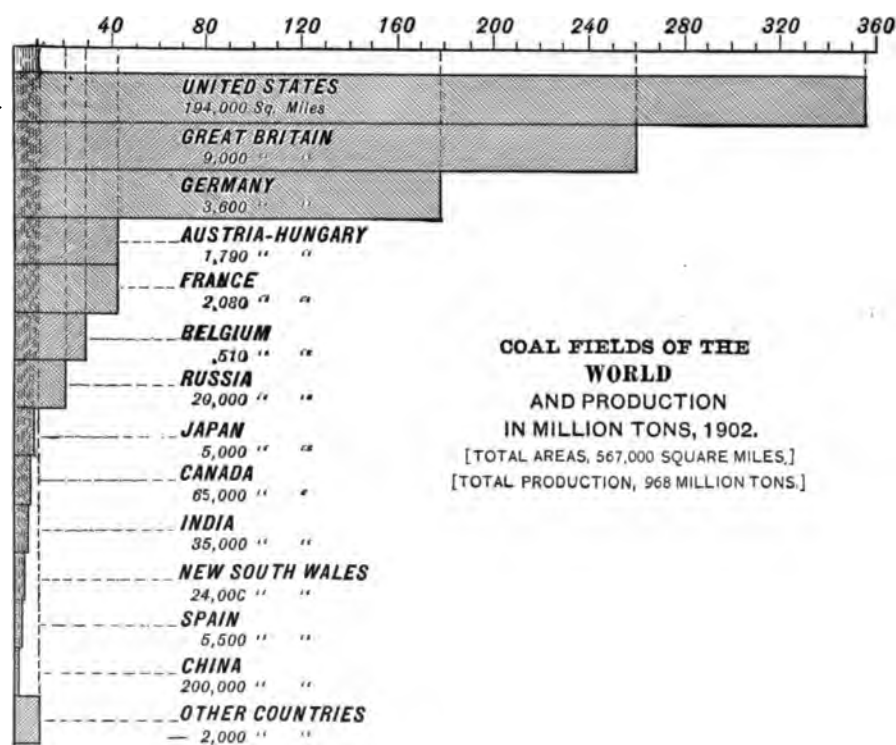


FIG. 11.

The three leading kinds of iron ore are the yellow (limonite), the red (hematite), and the black (magnetite). The two leading kinds of coal are hard, or anthracite, and soft, or bituminous. Anthracite burns with little smoke, and is therefore valuable for heating in cities and on railroads. The supply of anthracite is comparatively small. It is found chiefly in Pennsylvania, though there is a little in Colorado and New Mexico. Bituminous coal burns with a flame, giving off much smoke and gas. It is used in engines, in gas making, and to make coke. Coke is made by heating bituminous coal in ovens till the gases and coal tar are largely driven off. The gases are used for lighting, and the solid residue is coke. This coke is used for smelting. The largest coke ovens in the world are in the Connellsville district south of Pittsburg.

The separation of a metal from the ore by means of heat is called "smelting." The richest iron ores in this country are found along the shores of Lake Superior, and the best smelting coal is in western Pennsylvania. This coal and iron can be most cheaply brought together along the southern shore of Lake Erie. The Lake Superior ore is mined in open pits and shoveled into self-dumping cars by steam. These cars discharge the ore through chutes into the ore-ships which distribute it to the iron manufacturing towns along the lakes. The coke and limestone are brought here by rail. This convenient location of raw materials has made the region bordering the southern shore of Lake Erie the greatest iron and steel manufacturing section in the world. The Birmingham district in Alabama also has all the advantages for cheap iron making and ranks next in output to the Lake Erie region.

Written Work.—From Table VII make a list of the leading states producing coal, and the number of tons produced by each.

19. Petroleum and Natural Gas are generally found near the coal fields. They come from trees and plants that have been buried in the earth for ages. The gas is consumed in the neighborhood of the wells, but petroleum in its refined form as kerosene is used in every part of our country and is one of our five great exports. Besides kerosene, over two hundred other products are obtained from petroleum. Gasolene, naphtha, vaseline, aniline dyes, drugs, and soap are some of these.

The crude oil is pumped from the wells through pipe-lines to the sea-board. Here are great refineries which separate from the oil naphtha, gasolene, and

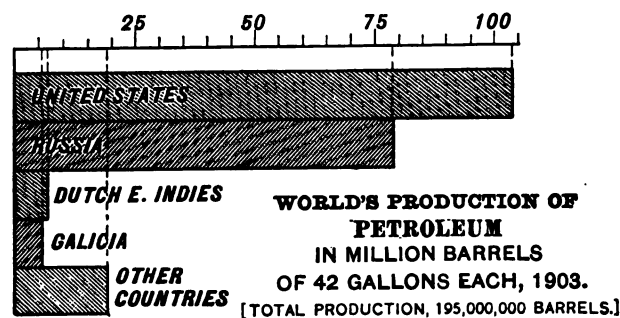


FIG. 12.

kerosene. What is left is made into vaseline, paraffin, anilines, and other "by-products." Refined oil, or kerosene, is run into tank-cars and steamers and sent to all parts of the world. What do you know about oil-wells (XXVIII, 6)? Natural gas is obtained by boring into the earth until the gas is found. It is then led through pipes to the cities, where it is used for both fuel and lighting. Natural gas forms the best fuel for glass-furnaces, and therefore the most of our glass is now made in the gas regions.

Written Work.—1. Locate on an outline map the petroleum fields of our country. 2. Write from Fig. 12 a paragraph on the distribution of petroleum in the world.

20. Copper is, next to iron, the most useful metal. *Brass* is made by melting together copper and zinc. Such a mixture of

metals is called an "alloy." *Brass* ranks next to iron and steel in usefulness. *Bronze* is an alloy of copper and tin. The chief use of copper to-day is as a conductor of electricity. Large

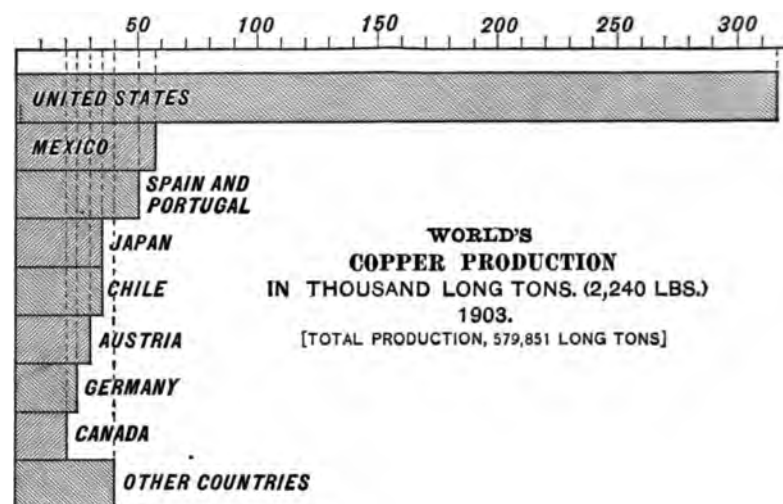


FIG. 13.

copper wires carry the current many miles to be used in running cars and machinery of every sort. Where is the world's supply of copper obtained (Fig. 13)? What part of the world's copper does the U. S. supply? From what states is copper obtained (Table VII)? The Lake Superior region, Arizona, and Montana yield six-sevenths of our copper. The veins in one Montana mine, which run through solid granite, are ten feet thick. In Michigan, pure copper is found in masses weighing from two hundred to six hundred tons. These must be broken up with hammer and chisel before they can be raised to the surface. The United States, owing to superior methods of smelting and refining copper, finds it profitable to import ores from Canada, Mexico and Japan, and to export the refined metal in bars. About half our refined copper is exported to Europe, chiefly through New York and Baltimore, because large refineries are near those cities.

For what is brass used? Can you mention anything made of bronze? Waterbury and Bridgeport, Conn., lead in the manufacture of brassware. Name some forms of electrical apparatus using copper wire. Name other uses of copper.

Written Work.—Write on outline map the copper-mining, smelting, and manufacturing centers of the United States.

21. Gold and Silver are called the "precious metals," although they are not as expensive as some metals which are rarer. They are of great importance to the world because of their use as money. Money is of great importance in carrying on the business of a country as it is used to measure the value of all goods that are bought and sold. Just as we want our pound weight and our gallon measure to be always the same, so we want our measure of value to be always the same. The standard of value in the United States is the gold dollar. It contains about 25 grains of gold 90% pure. Gold is the standard of value in most of the great commercial countries. The yield of gold is very regular. If it were sometimes found in vast quantities, and again in very small amounts, it would be more expensive at one time than another. This would make it poor material for money. Both gold and silver have been used as money from the earliest times. Gold is not found

combined with other substances in an ore. It is found as a pure metal in the sandy beds of brooks and rivers, in banks of sand and gravel, and in quartz rock obtained from mines. It is obtained from sand and gravel by washing out in a pan. This is called "placer-mining." Hard banks of gravel are broken down by powerful streams of water. This is called "hydraulic mining" (XLI). The quartz rock is ground-up in powerful mills. Gold

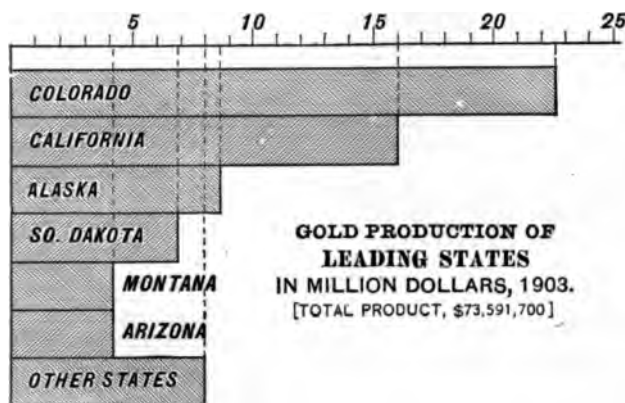


FIG. 14.

is extracted from gravel and ground-up rock by washing or by dissolving in mercury or cyanide of potassium.

The rock and gravel is washed down through long chutes with cross-pieces or "ripples," at the bottom holding mercury. The heavy grains of gold drop into the mercury and are dissolved. The mercury is separated from the gold by heat which drives it off in the form of vapor, leaving the gold behind.

Silver is found as an ore mixed with lead, copper, and sulphur. The ore is roasted, to drive off the sulphur, and then ground to powder and mixed with quicksilver.

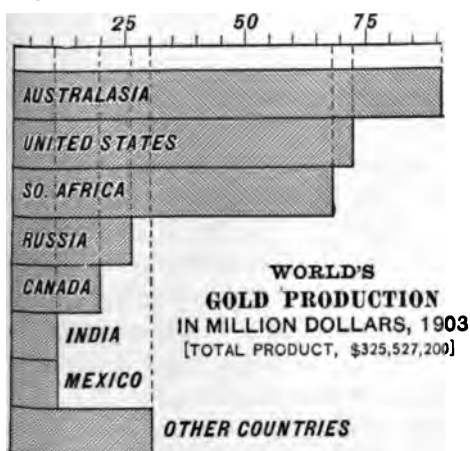


FIG. 15.

in the United States (index and Table VII). 2. Write a paragraph upon the world's distribution of gold and silver, using Figures 14 and 15.

22. Other Minerals.—*Aluminium* is obtained from clay and is the most abundant metal. It is light, strong, and is a good carrier of electricity, but is expensive to manufacture, costing twice as much as copper. Only small ornamental articles are yet made from it. *Manganese* and *nickel* are often used to make very hard steel. For what else is nickel used? Where is *zinc* obtained (index)? Did you ever see any? Zinc and lead are both used in manufacturing paint. Give other uses of lead? What States produce it (index)? *Salt* is a most important mineral. What is its chief use? It is also used to preserve meat and fish, and in making soda and glass. Where is salt produced (index)? *Clay* is used in making bricks, tiles, drain pipe, stoneware and

terra cotta. It has many other uses. What states lead in the pottery industry (index)? What kinds of building stone can you name? Where is each obtained (index)? *Cement* when mixed with water hardens to stone, which dampness cannot penetrate. The largest Portland cement works are in eastern Pennsylvania and western New Jersey.

Portland cement is made by grinding a natural rock with lime. It is used for making sidewalks, artificial stone, and for the foundations of buildings. The name comes from the resemblance in color to the stone from the Isle of Portland, England.

Graphite is a form of carbon. Where found and for what used? Phosphate, gypsum, and nitrate of soda are used as fertilizers. Describe mercury and tell some of its uses. Nearly all the world's mercury comes from Almaden, Spain, and from New Almaden, California. What is slate and where found? Name its uses. Platinum is a metal more valuable than gold. It is used in making vessels for handling certain acids which would corrode other metals and for delicate electric connections.

Written Work.—1. On an outline map of the United States locate each of the minerals named above. 2. Choose some metal and write an account of where it is found, things made of it, and their uses.

23. Manufactures in the United States.—Our manufactures exceed in value those of any other country. Name some of the materials which come from our fields, pastures, and mines, which we manufacture, or change into other forms, by the use of machinery. These are called "raw materials." In their altered forms they are called "manufactured products." Where is manufacturing chiefly carried on (p. 30)? What makes New

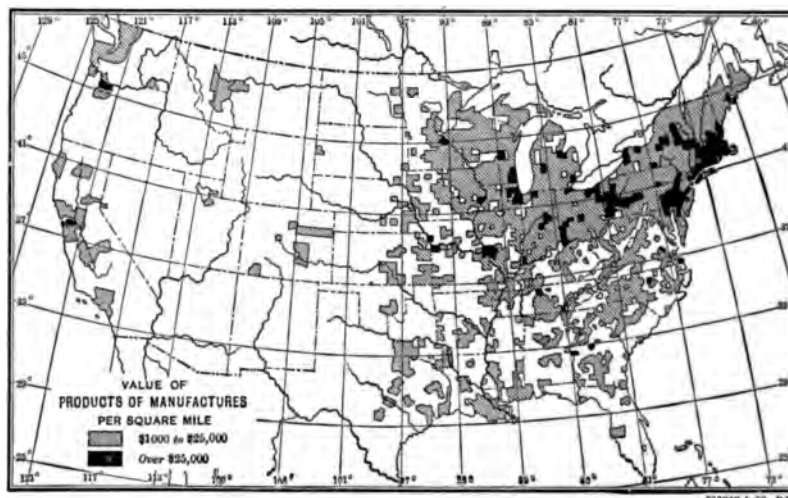


FIG. 16.

England a manufacturing region (XXV)? What helps to make the Middle Atlantic States a manufacturing region (XXVIII)? What advantages have the Central States for manufacture (XXVII)? Why has agriculture heretofore predominated in the Southern States? Why is manufacturing now increasing there (XXX, 7)? What occupations exceed manufacturing in the Rocky Mountain and Pacific States? What natural conditions cause this (XLII)?

Why are iron and steel made in western Pennsylvania (18*)? On the same principle explain the making of furniture in Michigan, turpentine in Georgia, malt liquors in Wisconsin, meat products in Illinois, steel in Alabama, and cotton goods in South Carolina. Find some other manufacturing industries established near the source of raw material. On the other hand, the location of a factory may be due to convenience of *power*. Explain the early establishment in New England of factories using Southern cotton; name cities of New England built near sources of water-power (XXV)? An industry

* Figures in heavy type refer to paragraphs in these lessons.

once established in a place may remain after the cause of its establishment has ceased to exist. There are factories in New England run by coal brought from Pennsylvania that were established because of water-power now no longer used. Agricultural implements are made in Illinois, Ohio and Indiana, chiefly because the *market* is near. Sugar and petroleum are refined in New York because they can be most easily brought there. Many industries will be established as well in one place as another. Thus Paterson in New Jersey leads in silk and in locomotives, Ansonia in clocks, and Brockton in shoes, because the energy and skill of certain men have built up these industries. The building of a railroad may develop industries along its route. Many a little station starts its creamery or canning factory because transportation is swift and cheap, and milk and fruit easy to obtain.

Written Work.—1. Write a paragraph on uses of steel. 2. Make a list of all the circumstances affecting the location of manufacturing towns.

The needs of a manufacturing nation are: *a*, raw materials; *b*, waterpower or fuel; *c*, good facilities for transportation; and *d*, a market for the goods made. Over 96 per cent. of our manufactured goods are used at home. This shows the rapid development of our country and the high state of civilization and intelligence of our people. American education, intelligence, and inventive genius have caused American machinery and labor-saving devices to be the best in the world. For these reasons, we are able to produce a greater variety of manufactured goods, and at a less cost, than most countries. The following will give an idea of the immense value of our manufactures.

TABLE I.

OUR TWENTY CHIEF MANUFACTURING INDUSTRIES AND APPROXIMATE VALUE IN 1903-4.

Iron and Steel Goods.....	\$975,000,000
Machinery and Engines.....	950,000,000
Preserved Meats (beef and pork).....	790,000,000
Lumber and Manufacturers of.....	735,000,000
Textiles (cotton, woolen, linens and silks).....	690,000,000
Clothing.....	623,000,000
Flour and Meal.....	560,000,000
Paper (including wood pulp), Stationery, Books and Newspapers....	522,000,000
Leather and Leather Goods.....	520,000,000
Cars and Vehicles.....	340,000,000
Distilled and Malt Liquors.....	334,000,000
Building Materials (brick, stone, lime, cement).....	320,000,000
Manufactures of Tobacco.....	293,000,000
Copper, Brass, and Bronze.....	254,000,000
Refined Sugar and Molasses.....	241,000,000
Lead Products.....	183,000,000
Bread and Bakery Products.....	175,000,000
Furniture and Upholstering.....	133,000,000
Butter, Cheese, and Condensed Milk.....	131,000,000
Refined Petroleum.....	124,000,000
Other Manufactures.....	4,090,000,000
Total.....	\$13,000,000,000
Cost of Raw Materials.....	7,000,000,000
Net Value of Our Manufacturing Industries.....	6,000,000,000

What are our two chief industries? What is the value of both? What does this show about our industrial rank. Why is the third so great? Account for the fourth. The sixth. The seventh. Give reasons for the eighth. How are the third and ninth related? What is the total value of all our manufactures? How much value has been added by labor to the raw materials?

Written Work.—1. Write on the chief manufacturing nations of the world, using Fig. 19, giving rank of the United States, and compare the value of our manufactures with that of other leading countries. 2. Make a list of some great inventions that have aided our manufactures.

24. Iron and Steel.—The extent to which iron and steel are used measures the rank of a country in manufactures, commerce,

and civilization. Compare Figures 17 and 19 and show how they agree with this statement. The latter half of the 19th century is sometimes called the "age of steel," because during that time steel began to take the place of wood and iron wherever strength and durability were required, just as we call the beginning of the 20th century the "age of electricity."

What is the rank of the iron and steel industries of this country? With machinery and foundry products, the value of this branch is nearly one-sixth of the total value of all our manufactures (Table I). About one-twentieth

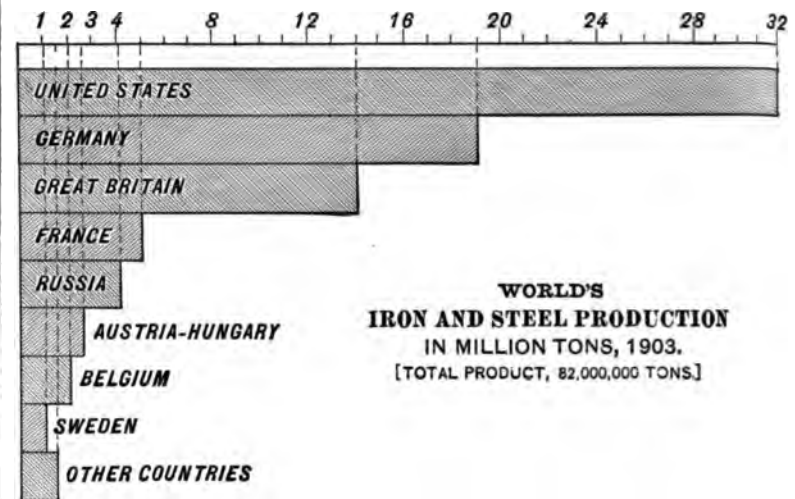


FIG. 17.

of this finds its way to foreign countries. One-half of these exports consists of electrical and sewing machines, pumping and mining machinery, engines, boilers, and printing presses. Other iron and steel exports are locks, hinges and other builders' hardware, tools, wire, and fire-arms. Steel ships, armor plate and cannon are of great importance (index). Nineteen-twentieths of our iron and steel goods are used at home. This shows that our industries are developing rapidly and that our domestic trade is vastly larger than our foreign trade. Besides the goods mentioned as exports, we use much steel in rails for our railroads and in frames for the thousands of steel buildings erected every year in our cities. Make a list of other uses of steel.

The difference in hardness between iron and steel is due to the amount of carbon contained. Carbon was formerly removed from iron by very laborious methods, but this is now done quickly and easily by the Bessemer process. Melted iron and ores containing metals which will harden the iron, are put into a vessel with small holes in the bottom through which a blast of air is blown. This blast of air burns out the carbon in the melted iron, and thus changes it into steel.

The vessel, or "crucible," is then tilted by means of pivots let into the sides, on which it is suspended, and the melted steel is run into moulds of any desired pattern. Much of it goes in the form of bars and plates to the rolling-mills where heavy machinery rolls it into rails, armor plates, sheets, and various other forms for immediate use, or for further manufacture.

25. Textile Goods.—The word "textile" includes all fibers that can be made into cloth. Name the chief animal fibers; vegetable fibers. Asbestos is sometimes called "mineral wool" because it can be made into cloth. Cloth-making is a leading occupation in all parts of the world. Name some kinds of covering for the body used by different races. In what climate is fur used? Wool? Silk? Cotton? Grass and straw are often used by the people of China and Japan.

Cloth-making by machinery began in England about the time of the American Revolution and was soon afterwards introduced into America by Samuel Slater. Account for its growth in New England; in the South. Where are the chief centers of cotton manufacture (index)? Describe four

steps in cloth-making. Name some varieties of cotton goods. What are "prints?" "Ginghams?" Laces, embroideries, and other trimmings are the most expensive form of cotton goods. Where are our silk and wool obtained (Table IV). Where do we get our linen goods? What cities lead in the manufacture of silks and woolens (Table II)? Cotton, linen, wool, and silk are mixed together in the making of some cloths, cotton being used with the more expensive fibers to lessen the cost of the product. What

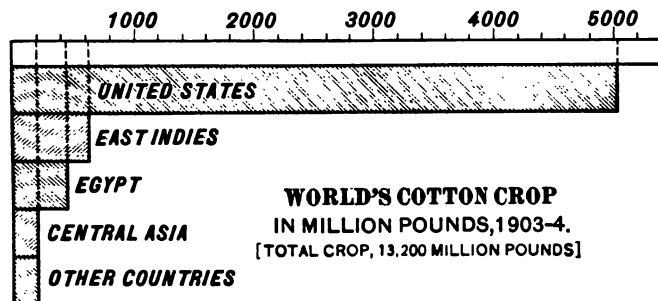


FIG. 18.

ports ship most of our cotton? What reason can you suggest for this? Find out from Table III the value of our cotton export. For what are the seeds of the cotton-plant used (XXX, 7)?

Written Work.—1. Turn to Tables III and IV and compare our exports of raw materials and cloth with the imports. 2. On outline map of the United States indicate by color the States producing cotton and wool.

26. Clothing for men, women, and children is one of our largest factory products. What is its value (Table I)? Over two-thirds of all the clothing worn in this country is factory made. Standard patterns of all sizes are made, and the cloth is cut and sewed by machinery. The large cities are the centers of this work. The clothing is sometimes made in factories, but much of it is done by men, women, and children in their homes. They are paid by the "piece," and often receive very low wages. New York stands first in this business. What six cities rank next (Table II)? These large cities are wholesale centers to which merchants from smaller towns come to buy clothing. This explains why clothing is manufactured in large cities. In your city, which is cheaper, "ready-made," or "tailor-made" garments? Why? The cheaper grades of cloth from our home factories are mainly used for "ready-made" clothing, while the more expensive goods brought from France and Great Britain, on which there is a high rate of duty, are used in work made to order.

Not only suits, overcoats, and cloaks are now made in factories, but underwear, collars, cuffs, neckties, hosiery, and every kind of knit goods are thus made. Can you tell why the factory process makes goods cheaper? How does the quality compare with that of home-made and tailor-made garments?

Written Work.—A truck being loaded with rolls of cloth is seen in front of a wholesale store; farther on a woman is seen carrying upon her head a great bundle of partly made garments. Write what is suggested to you by this.

27. Flour, meal, and bakery products.—What are the cereals (7)? Where are they grown (7-9)? What is the value of wheat for bread (7)? Why is not flour among the manufactures of New England (XXVII, 8)? In what part of the country do you think most of our flour is made? Many country places have mills where wheat, corn, and oats are ground between big stones which are made to revolve by water-power, but most of our flour is made in enormous mills near the wheat regions, where the grain is crushed by a series of immense steel rollers. What city leads in the manufacture of flour (Table II)?

Other milling towns are located along the great lakes and canals. Why is this? What do we receive for the breadstuffs sent abroad? What countries purchase breadstuffs of us? Which of our ports ship flour abroad (Table III)?

In most American cities, and even in small villages, the people depend largely upon local bakeries to supply them with bread, pies, and cakes. "Crackers" or "biscuits" of many varieties form a considerable article of domestic commerce. In the largest bakeries the baking is done in enormous rotary ovens revolving slowly in heated chambers. Every revolution of the oven turns out hundreds of loaves or pies. The annual product of these bakeries is nearly two hundred million dollars. In the country, baking is almost entirely done in the home.

Written Work.—1. On your outline map of the United States showing the wheat regions, locate the chief cities engaged in making flour (index under "flour"). 2. Children who live near a bakery write on "What I Saw in a Bakery."

28. Leather.—From what is leather made? The skins of the larger full-grown animals are called "hides." What part of our country supplies hides? From what foreign countries do we obtain them (Table IV)? The process of making leather from skins is called "tanning." This requires large quantities of oak and hemlock bark. These barks contain a substance called "tannin," which hardens the hide, and prevents it from putrefying. Most of the bark used is from our own forests, but there are also imported forest products used in leather-making. When the New England forests decreased, the tanneries of the country moved southward. Recently a process of tanning, called the "chrome" process, has been invented which dispenses with the use of bark and vegetable materials. The finer and softer kinds of leather are made by this process. "Morocco" and "Russian" leathers are fine varieties used in book-binding. The French make the finest leather for gloves and shoes. They also excel in making "patent" leather, which is ordinary leather coated with a glossy, waterproof lacquer.

The fur, wool, and hair obtained from the skins have important uses. The hair is mixed with mortar to give it toughness; the fur is used in making hats, and the wool for clothing. Some skins valuable chiefly for their fur are called "fur skins." They are tanned here and then sent to London and Leipzig to be dyed and prepared for making into "furs" for winter use. Our imports of hides and skins and our export of leather have doubled within a few years.

Written Work.—1. Make a list of articles made of leather. 2. From Tables III and IV write a paragraph on our trade in hides and leather. 3. On map of the world color the countries producing leather (see index under leather).

29. Other Manufacturing Industries besides those we have studied are of great importance. More money is spent for wine, beer, and distilled liquors each year in the United States than for the grain and meat used for food. What places are noted for each of these articles (index)? How many things can you name that are made of clay? Bricks are made in all parts of the country, but New Jersey and Ohio are the leading states in the pottery industries. Trenton and Perth Amboy have terra-cotta works. East Liverpool and Cincinnati, Ohio, also make fine ware. "Chemicals" is the name given to a large class of products. Among them are borax, alum, potash, fertilizers, soda, paints, dyes, medicines, oils, extracts, alcohol, and hundreds of similar articles of less importance. Find the value of our trade in chemicals (Tables III and IV). What things are made of paper? How do paper goods rank among our manufactures (Table I)? Of what raw material is newspaper made (index)?

What cities make jewelry? What of our trade in jewelry and precious stones? Glass-making is also a leading industry in several states (19). What articles, made of glass, are most largely used? The finest glass, rolled into plates, is called "plate glass."

All the above are large industries worth many millions of dollars annually. When we think that nearly everything we use is a factory product, we realize the immense extent of our manufactures. Every button, pin, needle, pen,

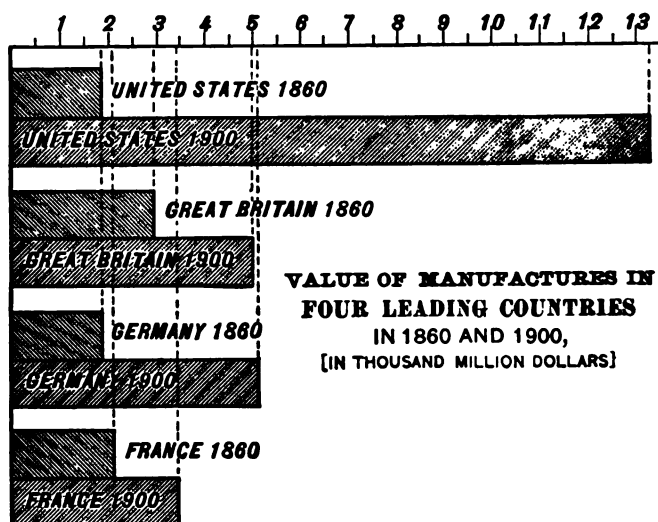


FIG. 19.

pencil, knife, and the many little conveniences of every-day use was made in a shop with millions of others of the same sort. Every industry gives employment to many hands, nearly 6,000,000 workmen being wage-earners in our factories.

Written Work.—1. If you have made a visit to some factory, describe what you saw. 2. *Manufacturing* means strictly "making by hand," but now most manufacturing is done by machinery. Write an account of some "hand" manufacturing that you have seen.

30. The Government's Relation to Commerce.—In all countries commerce is carried on according to regulations made by the government.

Our government protects our ships, our merchants, and other citizens in all parts of the world. Our navy is divided into squadrons stationed in various parts of the world, so that a ship can be sent to any place in case of trouble. Do you remember a case in which our navy used force to protect our trade? We have an officer called a "consul" in each important city of the leading countries. It is his duty to watch over our interests and the interests of our citizens in those countries, and to secure information that may help our trade.

The government also dredges out harbors, grants land to railroad companies, helps build canals, improves river navigation, keeps lighthouses along the coast, marks channels with buoys, and pays steamship lines to carry the mail. When canals and railroads are within the boundaries of any State, the State controls them, but when they lead from one State to another they are under the control of Congress. The government furnishes information to merchants concerning crops, markets, and prices in all parts of the world. This information is published and sent free to those who ask for it. Daily weather reports also are issued, and storm signals displayed, so that sailors and farmers may be warned of coming storms.

Written Work.—Make a list of the various duties of the government toward commerce and show the advantage of each.

31. Our Domestic Trade—*Our* is about twelve times as great as our foreign trade. Of *the* vast products of our fields and factories amounting to eighteen billions of dollars, nine-tenths is used by our own people. The "moving" of our crops and the distribution of our varied productions requires vast systems of transportation and gives employment to millions of men. What causes can you give for this domestic trade? Where do the people of the great manufacturing cities of the East obtain flour and meat? Where do they get cotton? Hides? Lumber? Wool? Naval stores? What part of the country supplies the West and South with manufactures? With timber? In general, which way do raw materials move? Food products? Manufactured goods? What trade is carried on between country and city? Between large cities and small towns and villages? Between the coast and the interior? What do the farmers of Kansas and Iowa buy in exchange for their wheat and corn? Where do these things come from?

If we think how many things are required to supply all our needs, and that most of them are made in comparatively few places, and often in a single city, we shall see how far goods must be carried to reach all the people who need them. We shall see also how many shops, stores, and markets are needed to sell these goods, and what a vast number of people may find employment as merchants, clerks, messengers, and carriers. All this helps us to understand the great volume and importance of our domestic trade.

Written Work.—1. Describe the trade and transportation necessary to provide us with a breakfast of oatmeal and milk, coffee, rolls and eggs. 2. Write what you know of the business of a grocery store. 3. Of a meat market.

31. Inland Transportation.—What are the uses of roads? Which roads are most used by the farmer? We have about 3,000,000 miles of wagon roads and 200,000 miles of railroads in the United States. Show the importance of each kind. Describe our great waterways (XXIV, 6). Name three rivers belonging to the Mississippi system, and the chief cities on their banks. Name ten rivers of the Atlantic Slope, and their chief cities; the rivers and cities of the Pacific Slope. Why do we usually find a city located at the mouth and one at the head of a navigation of a river (p. 67)? How far is the Mississippi navigable (p. 24)? The rivers of the Atlantic Slope? The steam—

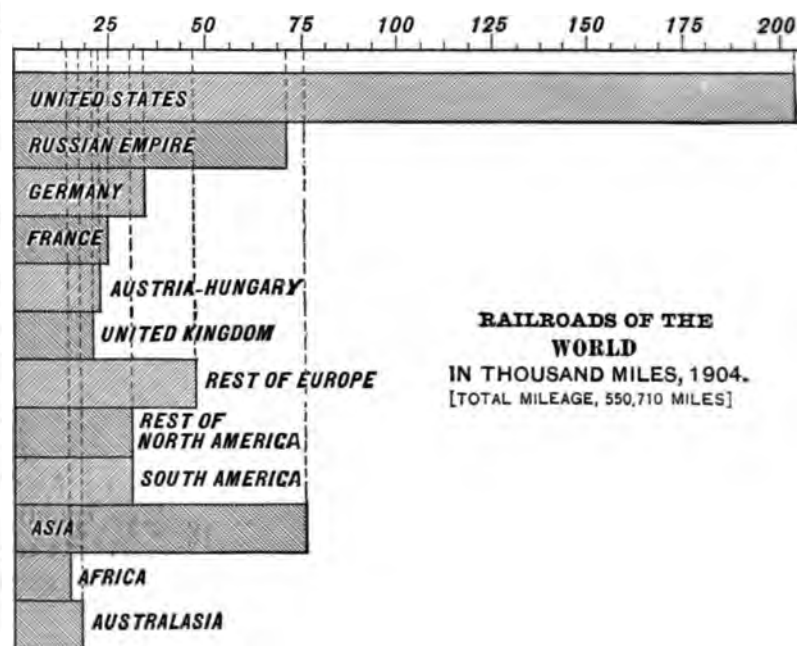


FIG. 20.

boats plying on the rivers bring farm and garden produce to the cities and carry away goods sold to the merchants of the smaller inland towns.

Locate and give the connections and commercial uses of the Erie Canal; the Sault Ste. Marie; the Welland Canal; the canal connecting the Hudson and Lake Champlain; Lake Erie and the Ohio; at the Falls of the Ohio (XXXVII, 2); connecting Lake Michigan and the Illinois; Lake Winnipeg and the Mississippi (XXXIX, 3); around the falls of the Schuylkill.

(Railroad lines, Map of Transportation and Travel.) What roads go from New York through Albany to Buffalo? These roads have parallel lines on both sides of the Hudson, and across the State. What road goes to Buffalo through northern Pennsylvania, and southern New York? Find the Delaware and Hudson; the New York, New Haven and Hartford; the Central Vermont; the Boston and Maine. This road connects with Troy, New York, and has a network of tracks from central Massachusetts northward. Find the Grand Trunk branch from Portland to Montreal. When the St. Lawrence is frozen, Canadian trade is carried over this road. New York is a great center for the transfer of freight and passengers. Goods brought from the northeast and northwest by rail, coasting vessel, or canal, are there transferred to vessels going to foreign countries, and to cities along our coast. Some goods are ferried to the Jersey shore for reshipment by rail, while freight and passenger trains are ferried around Manhattan to and from the Jersey coast. This convergence of many lines of transportation makes New York City probably the greatest distributing center of the world.

Follow the Erie road from New York to Chicago. Trace and name the roads from Chicago to Buffalo; to Quebec; to Cincinnati; to New Orleans; to St. Louis and Omaha; to El Paso, in Texas; to Denver; to Duluth. Trace and name the roads from Philadelphia to New York, Pittsburg, and Washington; from Baltimore to Cincinnati; Richmond to Cincinnati. Trace the routes of the Southern, the Atlantic Coast and the Seaboard Air Lines. What cities are connected by the Central of Georgia? Follow the Louisville and Nashville from New Orleans and Mobile to St. Louis; from Memphis to Cincinnati. By what great roads might you travel from New Orleans to San Francisco? From San Francisco to Chicago? From Portland, Ore., to Duluth?

Written Work.—1. Insert on outline map of the United States the chief railroad centers and termini of canals. 2. Describe the trade carried in each direction on railroad lines between Chicago and New York.

32. Coasting Steamship Lines.—(Map of Travel and Transportation). A vast number of steam and sailing vessels, perhaps 40,000 in all, are engaged in carrying goods from port to port along our coasts and between home and foreign ports. Our coasting trade is by law entirely carried on by American vessels, but five-sixths of our foreign trade is carried by the ships of Great Britain, Germany, Holland, and other nations. New York is the chief receiving and distributing point for the cotton and lumber of the South, the grain, cattle, and wheat of the West, the manufactures of the North and East, and of our imports from foreign countries. What six ports rank next in order (Table V)?

From what you have learned of the productions and trade of the different sections of our country, name some goods which might be carried each way on the following lines of steamships on trips named:

Mallory: Galveston, Mobile, and Brunswick, Ga., to New York. **Merchants and Miners:** Savannah to Baltimore and Philadelphia; New York, Washington, and Baltimore to Boston. **Southern Pacific:** New Orleans to New York; New York to San Francisco and Portland, Me. **Clyde:** Charleston and Jacksonville to New York. **Fall River, Joy, and other Sound Lines:** New York to Boston, Providence, and New England points. **Pacific Coast**

Line: Tacoma to San Francisco, Los Angeles and San Diego. **Alaska Steamship Co.:** Seattle to Dawson and Juneau. **Old Dominion:** Norfolk and Baltimore to New York. **Eastern Steamship Co.:** Boston to Eastport and Portland. About 100 transportation lines on the great lakes, connecting Duluth, Superior, Chicago, Detroit, Buffalo, Cleveland, Milwaukee, and other ports.

Almost all passengers and much freight going from Atlantic to Pacific ports goes by rail across the Isthmus of Panama. But much heavy freight goes in large schooners around Cape Horn. All this time and expense will be saved when the Panama Canal shall be completed. What do you know of this canal (see Recent Geographical Events)? Besides our steamship coast trade, we have a large number of sailing vessels, which carry such heavy cargoes as coal, lumber, brick and stone, naval stores, and ice. Our fisheries also employ many boats.

Written Work.—1. On a map of the United States locate the leading seaports and draw and name the steamship lines connecting them.

33. Ocean Steamship Lines.—An important part of our foreign trade is with the West Indies, and the ports of the Gulf of Mexico and Caribbean Sea. This trade is about half carried by our own ships, which make several trips a month.

From Tables III and IV and Fig. 29, find out what goods might be carried each way by the following lines: **Ward:** New York to Havana. **Plant:** Boston to Halifax. **United Fruit Company:** Boston, New York, Philadelphia, Baltimore, Mobile, and New Orleans to most points in Central America, Columbia and the West Indies. **Munson:** New York, New Orleans, and Mobile to Havana. **Lamport & Holt:** New York to Rio, Buenos Aires and Pernambuco. **Red "D":** New York to Porto Rico and Porto Cabello. **Cuba Mail:** New York to Tampico, Vera Cruz, and Progreso. **Panama Railroad Line:** New York to Colon.

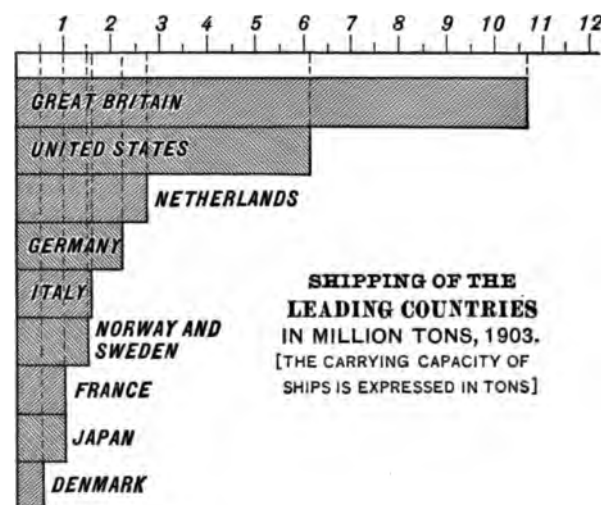


FIG. 21.

There is a much larger number of steamships engaged in the trans-oceanic trade; but owing to the greater length of voyage, only one-third as many trips can be made as by a "coaster." Many sailing vessels also make long voyages from American ports to Asia, Africa, and Australia. A large part of our trade is carried by "tramp steamers." They do not run regularly between the same ports, but carry cargoes to any part of the world.

On the trade chart (pp. 126-127) trace the course of the following steamship lines and tell, from Tables III and IV, what goods might be carried each way on any given voyage: **Cunard:** New York and Boston to Liverpool. **White Star:** Boston, New York, New Orleans, and Philadelphia to Liverpool and London. **North-German Lloyd:** New Orleans, Baltimore, New York, and Galveston to Plymouth, Cherbourg, Southampton, Bremen, and Naples. **Hamburg-American:** New York and Philadelphia to Hamburg. **Elder-**

Demster and Horsley Lines: Mobile to Liverpool and Havre. *Red Star*: New Orleans and New York to Antwerp. *Great Northern*: Tacoma and Seattle to Yokohama, Shanghai, and Manila. *Oriental*: San Francisco to Honolulu and Hongkong. *Strachan*: Brunswick, Ga., to London, Liverpool, Glasgow, Havre, Hamburg, and Bremen. *American and Australian*: New York to Melbourne. *American-Indian*: New York to Calcutta.

Written Work.—On Map of the World locate the ports named above, and draw the steamship lines between New York and these ports.

34. Our Foreign Trade is increasing rapidly as the result of large crops and cheap transportation (XXIV and p. 68). The export of our manufactures has increased on account of their cheapness and excellence, which have caused a demand for them all over the world.

The sum of the exports and imports of a country is called its "total commerce." The difference between the exports and the imports is called the "balance of trade." When our exports are greater than our imports, the

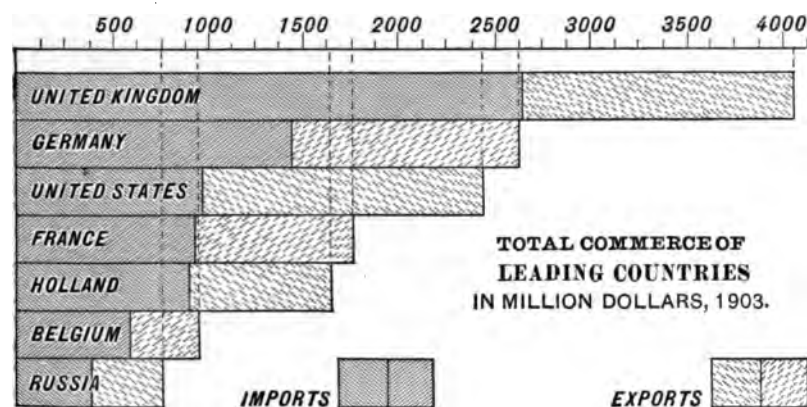


FIG. 22.

balance of trade is said to be 'in our favor' because then we *get* more money than we *spend*; but if our imports are greater, it is "against us." From Tables III, IV, find our trade balance for 1904. Is it against us or in our favor? Trade balances must be paid in cash by the nation against which they stand. No nation can afford to *buy* more than it *sells* unless it has other sources of income. Out of our large trade balance we pay 'over \$100,000,000 annually to foreign ship owners for carrying our goods. We also pay many millions to foreigners who own stocks and other property in our country. If a nation should continue for many years to buy more than it sold, with no income from other sources, it would become bankrupt.

Besides cheap transportation there are two other things which may increase or reduce our foreign trade. These are the tariff laws and special trade agreements with foreign nations.

A tariff is a tax laid by the government upon imports. If this tax is high enough it may keep out imports altogether. The man who brings the goods in pays this duty, and adds it to the price of the goods when he sells them. At present our government lays a high tariff on things which we produce at home. This is to keep up the price of these goods and thus "protect" the home producer from being "undersold" by foreigners. Therefore this is called a "protective tariff." If the tariff is laid solely for the purpose of raising money for the use of the government, it is called a "tariff for revenue only." A country that levies no tax at all on imports is said to have "free trade." Many British ports, as Hongkong and Singapore, have entire free trade, while Great Britain and Holland are practically free trade countries, since a duty is laid on only a few articles for the sake of revenue.

Written Work.—From Fig. 22 write a paragraph on the commerce of the leading countries, giving, if possible, a reason for the balance of trade in each country.

35. Cities of New England.—Many things have caused villages, towns, and cities to grow up. Ferries, waterfalls, the crossing of lines of travel and trade, harbors, the mouths of rivers, sources of natural wealth, and places noted for healthful and beautiful surroundings, all offer opportunities for business and

trade. Can you name some towns that owe their growth to one or more of these conditions?

Many small towns owe their prosperity to a single industry, but large cities usually have many industries which depend upon one another. Thus, textile factories support machine and repair shops and dyeing and bleaching establishments; blast furnaces give rise to steel mills, foundries, and hardware factories; while everywhere the grocer, butcher, tailor, shoemaker, and various tradesmen, supplying the needs of everyday life, have numerous shops and stores.

What advantages have the New England States for manufacture and trade (XXV, 2, 4, 6)? The New England cities had an early start in manufacturing, and the capital and skill acquired have enabled their wares to undersell the rest of the world.

What is the chief port of entry for New England (Table V)? What are the chief manufacturing cities (XXV-VI and Table II)? What do you know of the manufactures and commerce of *Boston* (XXVI and Table II)? How does it rank as a port of entry (Table V)? Compare its exports and imports. Compare it with New York as to number of ships. Compare the value of its manufactures with those of New York (Table II). It makes more clothing, books, and refined sugar than any other New England city, and is the leading wool, boot and shoe, and leather market of the United States. Through its port much grain, beef and pork are exported from the West, and into the port millions of tons of coal come for distribution through New England. *Gloucester* is the leading fishing port of the United States. Wooden vessels are built there. *Worcester* is an inland trade center, and ranks first in the country for the manufacture of wire. For what are *Lowell*, *Fall River*, *New Bedford*, and *Lawrence* noted? Describe the commerce and manufactures of *Portland*. It is an important port of entry. It has fine wharfs, warehouses, and grain elevators, and dry docks for ship-repairing. For what is *Bangor* noted? Much ice is shipped. Mention other manufacturing and commercial cities. What is the only harbor in New Hampshire? It has considerable coast-wise trade, and is a distributing center for coal. Name other manufacturing towns of the State. Name the chief cities of Connecticut. What do you know of *Providence*? It is a port of entry, and is the second city in New England in size and wealth. What are its chief manufactures (Table II)? It ranks first in the Union in jewelry, silverware, and worsteds.

Written Work.—1. On outline map of New England locate the chief manufacturing cities and write a fact about each. 2. Make a list of as many articles as you can that are made in New England.

36. Cities of the Middle Atlantic States.—On what minerals do the manufacturers of these States depend? How is the coast adapted for commerce? How are the seaports connected with the interior (XXVII, 5, 8)? What do you know of the commerce and manufactures of *New York* (XXVII, 2, and Tables II, III, IV)? It is the second commercial city of the world. Nearly half the foreign commerce of the country passes through this port, and its domestic commerce is many times greater. Why and how are goods reshipped here? What do you know of the manufactures of *Rochester* (Table II)? It is the third city in the State, and owes its importance to the Genesee Falls. The canal and railroad trade is large, as is also the lake trade through Charlotte on Lake Ontario. Describe the manufactures and commerce of *Buffalo* (Table II and XXVIII, 3). This is the second city in New York. About 1200 vessels enter and clear here annually. Compare with the trading vessels in New York harbor (Table V). Meat packing is the largest industry. The water-power of Niagara Falls is used in manufacturing. Name other important cities in New York. *Philadelphia* makes more carpets than all the rest of the country combined. It leads in woollens and leather. Why did it become a center for leather manufacturing (28)? What are the industries of *Pittsburg* and *Allegheny City* (Table II)? Pittsburg about equals Boston in the value of its manufactures. Over half of its products are iron and steel. Name other large cities of Pennsylvania. What manufacturing

cities in Delaware (XXIX)? Name the manufactures of *Newark* (XXVIII; Table II). Of *Jersey City*. Of *Paterson*. Describe the trade and manufactures of *Baltimore* (XXIX and Table II). Name other cities of Maryland; of West Virginia. What do you know of the manufactures of *Richmond*? It became a manufacturing city because of the water-power due to its location on the "Fall Line," but it now uses much coal. *Norfolk* is the largest peanut market in the world. What of *Portsmouth*? *Petersburg*, *Lynchburg* and *Danville*? *Roanoke* and *Newport News*?

Written Work.—1. Locate on outline map all cities named in this lesson. 2. Make a list giving the chief manufacturing industry in each city and the best reason you can for its being carried on there.

37. Manufactures and Cities of the Southern States.—The Southern States now manufacture a good deal of their own raw materials. These consist chiefly of cotton and its seed, forest products, sugar, coal, iron, and rice, with the addition of cattle products in Texas. Cotton goods is the largest manufacture. In this, South Carolina ranks first, North Carolina second, and Georgia third. But every Southern State, except Florida, makes some cotton goods. Some factories have moved from New England to the Southern States, to be nearer the raw material. Yarns and coarse grades of cloth are manufactured for sale to Eastern Asia. What do you know of naval stores? For sugar and iron, see XXXIII-IV.

Wilmington ships cotton and naval stores. *Charlotte* and *Raleigh* have cotton factories and cotton-seed oil mills (XXVI). At *Newbern* there is held, every February, a fish, oyster, and game fair. Name other important places in North Carolina. Give four chief cities of Tennessee, with their industries. Give four cities of South Carolina. The harbor of *Charleston* is naturally poor, but has been much improved by jetties. A fertilizer is made there chiefly from phosphate rock. Locate four cities of Georgia. *Savannah* ships enormous amounts of naval stores and supplies northern markets with early fruit and vegetables. *Atlanta* is the meeting point of several natural routes of travel, and is therefore called the "Gate City of the South." The railroads have followed these routes. *Augusta* is called the "Lowell of the South." Why (XXVI)? Locate four important cities of Florida. *Key West* and *Tampa* rank next to New York in the import and manufacture of Cuban tobacco. Locate the four chief cities of Alabama. *Mobile* imports fruit, sisal hemp, and rubber from Mexico and Central America, and ships coal, iron, and produce to Gulf ports. *Birmingham* is the center of the iron and steel industries, and has many furnaces, mills and factories. *Montgomery* has cotton factories, cotton-seed oil mills and has a large wholesale trade.

Locate four cities of Mississippi. *Meridian* is the chief manufacturing city of the State. It gets coal cheaply from Alabama, and raw materials for its manufactures from the cotton-fields, pine forests, and iron furnaces of the South. What cities engage in river, as well as railroad, trade? Locate four cities of Louisiana. *New Orleans* is the chief manufacturing city of the South. It is the greatest cotton market of the world. How does it rank in imports? In exports (Tables III, IV)? It is a great market for the fruit and coffee of South and Central America and the West Indies, and it exports sugar, rice, and barrel heads and staves. It is a point of transfer for the foodstuffs of the West, and

the clothing and manufactured goods of the East. *Shreveport* is a railroad center, ships cotton and is an important distributing point for the surrounding country. Name other important places in Louisiana.

Locate five cities of Texas. *Galveston* ranks next to New Orleans as a cotton port. It was devastated by a great storm in 1900, and a great wall has since been constructed to protect the town from the sea. *Houston* is the chief railroad center of the State, and has a waterway to the Gulf. It exports quantities of cotton, and much lumber and rice. *Dallas* is the most important city of northern Texas. Its great manufacture is saddlery and harness. It is the seat of an annual state fair. *San Antonio* is a distributing point for southwest Texas and a favorite winter resort. *Fort Worth* is a shipping point for cattle, and has stock-yards and packing-houses. *El Paso* is the gateway from the East to Mexico and California. It has smelting plants where ore from Mexico, Arizona, and New Mexico is reduced.

Written Work. 1. Locate on an outline map the cities of the Southern States named above. 2. From Tables II-V, write a paragraph on the trade of the chief Southern ports.

38. Cities of the Central States.—What are the chief minerals of these states (XXXVI)? Vegetable products? Fisheries? What are their chief exports? The facilities for transportation? What are the industries of *Louisville* (XXXVII)? On what falls is it? Of what advantage is this? Coal, iron and lumber are easily brought to the city by water. What industries arise from this (23)? Louisville is the chief manufacturing city of Kentucky, and the leading tobacco market in the world.

Where are *Covington* and *Newport*? How are they connected with Cincinnati (XXXVII)? They manufacture tobacco, iron, steel, liquors, clothing, and packed meats. What do you know of *Lexington*? Name other important cities of Kentucky and their industries.

Where is Cincinnati? It is connected by canal with Toledo and Cleveland. In this way it obtains material for foundry and machine shops. It makes also much clothing, boots, and shoes. Why is the lake front where *Cleveland* is situated well placed for the manufacture of steel (23)? Electrical apparatus, sewing machines, and automobiles are among its products.

For what is Toledo noted? Dayton? Akron? Columbus?

Indianapolis has extensive foundries and machine shops, flour mills, carriage and wagon factories, and makes much malt liquor and furniture. For what is *Evansville* noted? It has a number of flour mills, lumber mills, and furniture factories. Name other chief cities of Indiana. For what is *Chicago* noted? It has enormous meat-packing industries, iron and steel works, furniture factories, carriage and car shops, and publishes many books. Cotton and woolen goods, silks and laces, and various other materials are brought from the factories of Europe and the Eastern States for use in the manufacture of men's, women's, and children's clothing.

Flaxseed is obtained in Michigan and Wisconsin for the linseed oil used in making paints and varnishes. Leather products, worth sixteen million dollars, are made annually. Name other manufacturing and commercial towns of Illinois.

Locate *Detroit*. What are its occupations and advantages? Foundry and machine shops are its chief factories. It manufactures almost five million dollars' worth of druggists' preparations yearly. It has also tobacco factories, and several large meat-packing establishments. Where is *Grand Rapids*? Its chief

industry is furniture making. There are over thirty factories. Where can they get their lumber (XXXIX)? Name other cities of Michigan.

What do you know of *Milwaukee*? Its chief products are from its foundries, although it is most noted for beer. Its leather products are worth over ten millions a year, and much flour is made. Name other important cities of Wisconsin. For what is *Minneapolis* noted? The annual products of its flour mills are valued at about fifty million dollars. The lumber products which rank next, are only one-fourth as valuable. These are the two great industries of the city. Name other cities of this State. What are the cities of North Dakota? *Fargo* and *Grand Forks* lead in manufacturing, but their products are mostly for consumption within the State. What are the cities of South Dakota? Locate *St. Louis*. For what is it noted (XL)? It is the second greatest manufacturing city of the Middle West, although its products are only one-fourth as great as those of Chicago.

This is mainly due to its poorer connection with the Atlantic seaboard. The river is spanned at this point by fine bridges. Name other cities of Missouri. For what is *Des Moines* noted? It is in the center of a fine grazing region. What are other cities of Iowa? Where is *Kansas City*? The two cities of this name really form one center of population; their dividing line runs through the middle of a street. The great meat-packing establishments for which the cities are famous are on the Kansas side. Name other industrial cities of Kansas. Where is *Omaha*? With Council Bluffs and South Omaha it forms a railroad and trade center and shipping point for cattle. At South Omaha are great slaughtering and meat-packing industries.

Written Work.—1. Locate on an outline map the cities of the Central States, and state a fact about each bearing on its industries or trade. 2. Compare the industries of the Central States with those of the Southern or New England States.

39. Cities of the Rocky Mountains and Pacific States and Territories.—What are the physical features of these sections? Their chief products? Some of the cities are built where they can supply food, clothing and tools to mining regions, and smelt or refine the ores from the mines. Some are built near forests, or on salmon streams, and are engaged in lumbering or fruit canning. Which are built near the coast? In what industry may they be engaged? Which are on great transcontinental railroads? For what region is each a distributing center?

Albuquerque is a railroad center. On what system (map)? For what is it noted (XLI)? Locate *Denver*. What are its industries? It is the financial center of the mining district of Colorado. The making of iron and steel goods for use in mining processes is its largest industry. There are abundant coal and iron at hand. Flour, books and paper, cars and carriages are among the varied manufactures of this city. On what river and what railroads is *Pueblo*? What are its industries? It is near enough to coal, iron, and petroleum to enable it to smelt the lead ores of the region advantageously. Locate two other mining centers of Colorado. Where is *Cheyenne*? It is a shipping point for cattle. Name other cities of Wyoming? Where is *Helena*? It is in a rich mineral region. Describe *Butte* and *Anaconda* (XLI). Name other cities of Montana. What are the cities of Nevada? Name three cities of Arizona. *Tucson* reduces silver and copper ore. Locate two cities of Utah. Why are they so near each other? On what railroads are they? Locate two cities of Idaho.

Where is *San Francisco*? For what noted? It has a fine, deep harbor, and is the center of much trade. Its exports go chiefly to Asia; its imports also come from Asia and from Hawaii. It sells the wheat, lumber, flour, canned salmon, fruit, and meat of the Pacific region, and brings tea and silk from

China, coffee from Central America, coal from Australia and British Columbia, and sugar from Hawaii. Seal furs are brought here from the Alaskan waters, to be shipped to London for dyeing. This city makes one-half the goods manufactured in the State. Sugar is refined, beer, leather, boots and shoes, tobacco, soap, books and many other articles are made.

For what is *Portland* noted? It manufactures flour and lumber. Jetties have been built at the mouth of the Columbia River, so that Portland is really a seaport. It has much coast-wise trade in flour and lumber. Here are important shipbuilding plants. Where is *Salem*? It has flour and wool mills. Locate *Tacoma* and *Seattle*. They are, next to San Francisco, our chief seaports on the Pacific coast. What railroads terminate at *Seattle*? Fish-canning is an important industry, both here and at *Astoria*.

TABLE II

THE TWENTY-FIVE LEADING MANUFACTURING CITIES OF THE UNITED STATES, THEIR FIVE LEADING INDUSTRIES AND APPROXIMATE VALUE OF PRODUCTS IN MILLION DOLLARS. CENSUS OF 1900.

CITIES	LEADING INDUSTRIES AND VALUE IN MILLION DOLLARS	VALUE OF ALL INDUSTRIES
New York.....	Clothing (206), Castings and Machinery (41), Tobacco (38), Beer (39), Books and Papers (26), Coffee and Spice Roasting and Grinding (21).....	\$975,000,000
Chicago.....	Meat Packing (249), Clothing (46), Castings and Machines (45), Agricultural Implements (25), Iron and Steel (32), Cars and Carriages (23), Books and Papers (19)...	889,000,000
Philadelphia...	Castings and Machines (38), Woolens and Worsteds (4), Carpets and Rugs (22), Leather (18), Beer (13).	603,000,000
St. Louis.....	Tobacco and Cigars (26), Malt Liquors (12), Meat Packing (12), Castings and Machines (12), Clothing (9), Cars and Repairs (8).....	234,000,000
Boston.....	Sugar (16), Clothing (12), Books and Papers (10), Castings and Machines (9), Beer (8).....	206,000,000
Pittsburg.....	Iron and Steel (97), Castings and Machines (11), Electrical Machines (14), Beer (4), Books and Papers (3).	203,000,000
Baltimore.....	Clothing (20), Tobacco (10), Canned Goods (8), Castings and Machines (6), Meat Packing (5).....	161,000,000
Cincinnati.....	Clothing (14), Castings and Machines (12), Boots and Shoes (9), Distilled Liquors (9), Beer (6), Tobacco (5).....	157,000,000
Cleveland.....	Iron and Steel (30), Castings and Machines (15), Meat Packing (8), Beer (4), Kerosene (3).....	136,000,000
San Francisco.	Sugar (11), Castings and Machines (8), Meat Products (5), Clothing (5), Flour (4).....	133,000,000
Newark.....	Leather (11), Beer (8), Jewelry (7), Castings and Machines (6), Books and Papers (3).....	127,000,000
Milwaukee....	Castings and Machines (15), Beer (14), Leather (10), Iron and Steel (7), Flour (6).....	124,000,000
Buffalo.....	Meat Products (10), Castings and Machines (7), Cars and Carriages (6), Linseed Oil (6), Soap and Candles (4).....	122,000,000
Minneapolis...	Flour (40), Lumber (15), Castings and Machines (3), Linseed Oil (2), Brick and Stone (2).....	111,000,000
Detroit.....	Castings and Machines (9), Tobacco (6), Drugs (5), Iron and Steel (4), Meat Products (3).....	101,000,000
Providence....	Worsteds (17), Jewelry (13), Castings and Machines (9), Silverware (4), Cotton Goods (3).....	88,000,000
Kansas City...	Meat Packing (23), Soap and Candles (1), Castings and Machines (66).....	83,000,000
Louisville....	Tobacco and Cigars (14), Cotton-seed Oil and Cake (5), Meat Packing (4), Castings and Machines (3), Leather (3).....	79,000,000
Jersey City....	Tobacco (6), Meat Packing (6), Soap and Candles (2), Cars and Carriages (3), Chemicals (2).....	77,000,000
Rochester.....	Men's Clothing (11), Boots and Shoes (7), Castings and Machines (4), Flour (3), Tobacco (3).....	69,000,000
Indianapolis...	Meat Packing (13), Castings and Machines (6), Flour (4), Carriages and Cars (4), Furniture (2).....	69,000,000
New Orleans..	Sugar (23), Bags (3.4), Rice (Hulled) (3), Castings and Machines (2), Clothing (3).....	64,000,000
Allegheny City.	Iron and Steel (8), Castings and Machines (6), Pickles and Preserves (4.4), Meat Packing (4), Beer (1)...	54,000,000
Worcester.....	Castings and Machines (8.5), Woolens (1.5), Wire (1.5), Boots and Shoes (1.6), Envelopes (1).....	53,000,000
Paterson.....	Silk (26), Castings and Machines (6), Beer (2), Shirts (1), Meat Packing (1.3).....	52,000,000

Locate *Sacramento*. It is the chief city in a long valley, which forms the granary of the State. The city manufactures considerable flour. Locate *Los Angeles*. The electric power used in this city is generated by a waterfall eighty miles away. Where is *Alameda*? It is in an orange-growing region. Canned fruit and flour are exported. Name other cities of the Pacific States.

Written Work.—Locate on an outline map the cities named in this lesson, and state some fact about each bearing on its industrial importance.

Other Countries of North America.

40. Canada.—What are the surface features of Canada (map, p. 19)? The climate (XX, XLIV)? The chief resources? The industries? With what nations is commerce carried on? What are the chief Canadian trade routes? By what routes does Canada trade with this country (p. 70)? With Europe? With Asia? Name the chief mineral products and tell where each is found; the products of herding; farming; forestry; fishing; hunting. In 1894 nearly a million fur-bearing animals were caught, but the product now is not half so great. The manufactures consist chiefly of flour, leather, lumber, and alcohol. Canada makes more cheese than any other country in the world. Shoes, beer, cane sugar, cotton cloth, and farm tools are made for home use. What raw materials used in these manufactures are you sure that Canada imports? Give reasons. From Fig. 23 state the chief occupations of Canada; the least important.

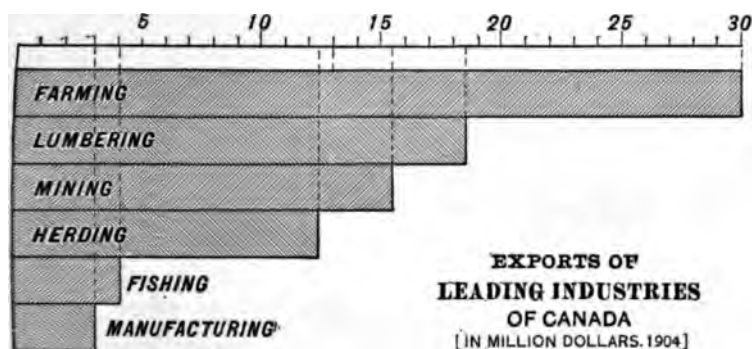


FIG. 23.

Compare with Fig. 1. In what are the industries of the two countries alike? How do they differ? Name the chief cities of Canada, and tell for what each is noted.

From Fig. 29 describe the trade of Canada with the United States. What raw materials do we buy of her? Can you tell why Toronto imports our coal while British Columbia exports coal to us? Would cost of transportation explain it? Why does Canada buy more goods of us than of Great Britain? Why does she sell Great Britain more wheat than she does to us?

Written Work.—1. From Fig. 29 write a paragraph on our trade with Canada. 2. On outline map of North America write our exports to and our imports from Canada as shown in Fig. 29.

41. Mexico (XLVI).—Give the location of Mexico; its physical features; its climate. What are its mineral products? animal? How does Mexico now rank in silver production? Find out from Fig. 25 her share of the world's production. Name the vegetable products of its several regions. The coffee of Oaxaca (wá-há'-ká) ranks with Mocha and Java. From Fig. 26 give the three chief industries. How does manufacturing rank? Compare the industries of Mexico with those of the United States and Canada (Figs. 1, 23, 25). As in Canada, the

manufactures of Mexico consist of the necessities of life. They are generally of rude workmanship. One-third of our exports to Mexico consists of mining machinery and explosives. What railroad lines connect the United States and Mexico (p. 67)? Vera Cruz and Tam-

pico are connected with our leading Atlantic ports by steamship lines which carry the greater part of the trade. Name these lines

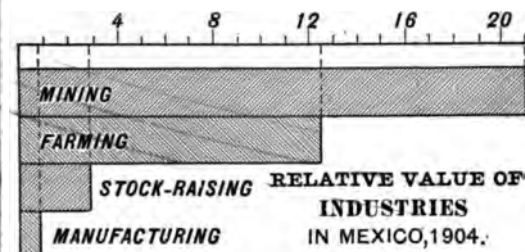


FIG. 25.

and tell which of our ports they enter (33). Find Carmen. It is the shipping port for the sisal hemp of Yucatan, our chief import from Mexico. Study Tables III and IV for the articles of our trade with Mexico. Most of the mining, railroading, and foreign trade, in Mexico, is in the hands of Americans or Germans. This is due to the enterprise and engineering skill of the Americans and to the efforts of German merchants to extend their trade. What is needed to build railroads?

Written Work.—1. Consult Fig. 29 and give the best reasons you can why certain things are exported and others imported. 2. On an outline map write our exports to Mexico and our imports from that country; locate the chief seaports.

42. Central America (XLVII).—Locate Central America. Describe its surface; climate. Compare with Mexico. What are its mineral resources? Vegetable? The low plain on the east yields tropical fruits. The interior is mostly forested. Name the forest products. A medicinal gum called "balsam of Peru" is also found. The high western coast contains the plantations and farms. What are the chief farm products? Wheat, corn, cattle and sheep are produced in the higher tablelands, but not enough for the home demand. Name the states of Central America and the form of government of each. The people are entirely engaged in agriculture and mining, but the mines are little developed because transportation is poor. The people lack education, and are frequently engaged in civil war; manufactures are backward. What are the chief exports (XLVII)? The trade is chiefly controlled by foreigners.

Our largest import from Guatemala, Costa Rica, and Salvador is coffee; from Honduras and Nicaragua, bananas and mahogany. From trade map, Fig. 29, name our exports to Central America. The building of the canal has increased our trade with Panama. What are our other imports from that country? What does our trade show with regard to the industrial development of Central America?

Written Work.—1. On an outline map of Central America locate the chief seaports and steamship lines entering them, and write the exports and imports carried as in Fig. 29. 2. Write a paragraph on the republic of Panama and our interests there.

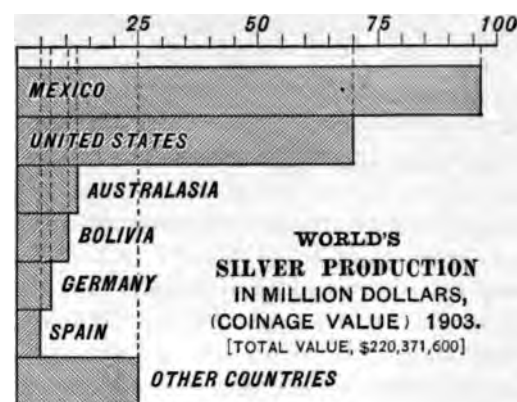


FIG. 24.

43. The West Indies.—Describe the location of these islands; their size; divisions; surface (map, p. 19); climate (p. 75). Which are independent? To whom do the rest belong (XLVIII)? From Fig. 27 name their chief products and describe their trade with us. These islands are almost entirely agricultural. The sugar industry is more important than all others combined. So much attention is given to it that food crops are neglected, and the islands depend on the United States, Canada, and South America for flour and meat. Compare the density of population in the West Indies and our country (Table VI). In the more thickly settled parts of our country and of Europe, wealth is great. This is not true in these islands. In 1899, sixty-four per cent. of the people of Cuba could not read. What bearing may this have on prosperity? Exports from Cuba have doubled since her independence. What trade-routes do you know from these islands (pp. 124-5 and 33)? Little attention has been given to road-building, and only the regions near the coast are developed; the farmers in the interior of Cuba and Porto Rico raise only enough fruit, vegetables, and grain for their own needs.

Since the independence of Cuba and the acquisition of Porto Rico by the United States, railroads have been begun which will connect all the leading towns on each island and make a continuous circuit of the coast. Highways also are being built and streams bridged in order to connect the rich interior regions with these roads. What do you know of Cuban tobacco (13)? From map, Fig. 27, describe our trade with the West Indies.

Written Work.—1. Write a paragraph on the industries of the West Indies. 2. Compare West Indian products with those of the United States. 3. Explain how our trade depends on the difference in climate.

44. Sugar.—The English-speaking peoples use about half of the world's supply of sugar. In the United States the average consumption is about seventy pounds a year for each person.

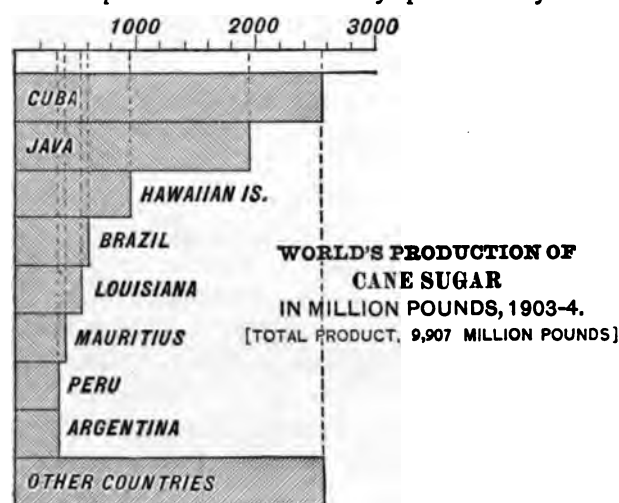


FIG. 26.

The countries that produce raw sugar are seldom the ones to refine it. Hawaiian sugar is refined in San Francisco, Cuban sugar in New York and New Orleans, and East Indian sugar in Holland. The reason for this is that the process of refining is a complicated one requiring expensive machinery. Molasses is also made from corn, from potato-starch, and from sorghum, an inferior sugar cane. In European countries the sugar grower is paid a small bounty by government. How would this affect production? The *refuse* beet is good food for cattle, while the *refuse* cane is burned. Many countries that formerly raised sugar cane at a profit have been forced by the competition of beet sugar to raise other crops. As the sugar beet can be more cheaply grown than cane in the countries that consume the sugar, the cane sugar grower is at a disadvantage, since his product must pay the cost of transportation.

Written Work.—1. Using Figs. 26 and 32, write an account of the world production of sugar, telling in what countries and climate the sugar beet grows also where sugar cane is grown—countries, and climate. 2. On map of the world show by color or shading the countries producing beet and cane sugar.

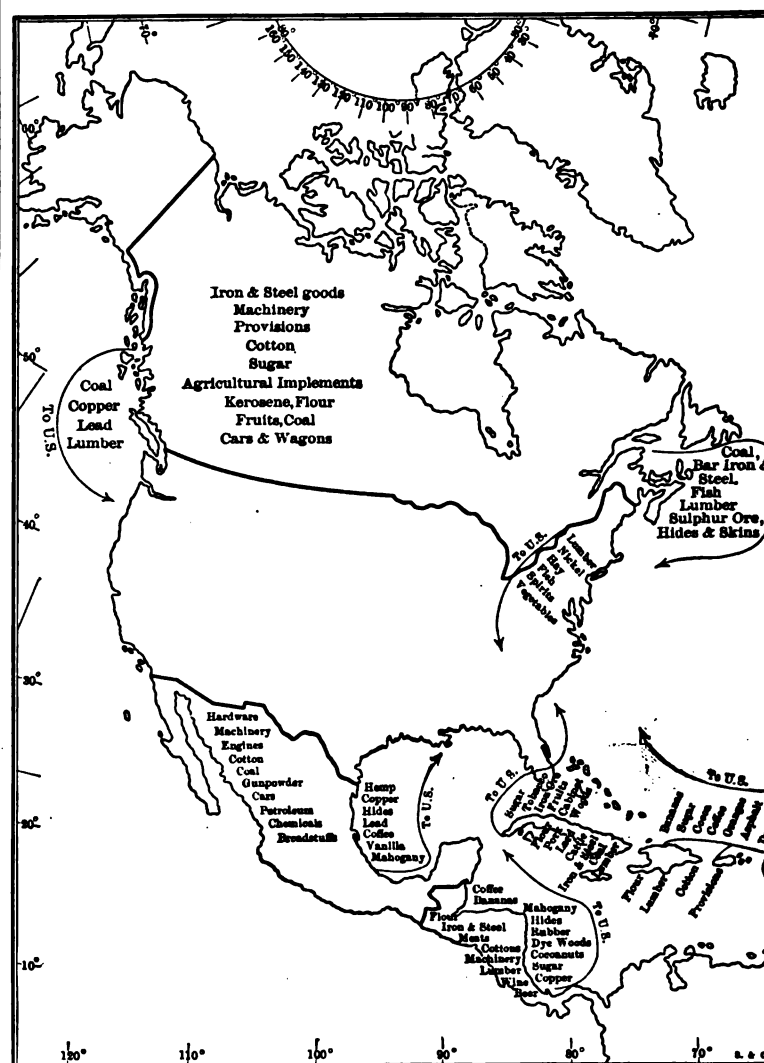


FIG. 27.—TRADE OF THE UNITED STATES WITH OTHER COUNTRIES OF NORTH AMERICA. EXPORTS ARE PLACED IN THE COUNTRY BUYING THEM. OUR IMPORTS ARE PLACED NEAR BORDER OF THE COUNTRY THAT SELLS THEM. EXPORTS AND IMPORTS ARE NAMED IN ORDER OF THEIR VALUES.

Review of Our North American Trade.—Which parts of this continent are largely unproductive? Why? Compare our trade with the tropical part of the continent with our trade with the cold part. Name products obtained from each section. What products do we obtain from the western part of Canada? The eastern part? The central part? What are the means of transportation in each case. If instead of the Great Lakes and the St. Lawrence River, a high range of mountains separated Canada and the United States, how do you think the trade between these countries would be affected? What countries in Europe can you name that are separated by mountains? Asia? Do you know what effect this separation has had on these countries? Judging from the map, what do you think of the importance of our eastern coasting trade? What goods are sold to Mexico? From what part of our coast would they be sent? What goods are received at our southern ports (Table IV)? How do you think the Panama Canal will help the trade of the western coast of North America? How will it help the trade with the West Indies?

EUROPE.

45. Physical Features; Resources.—How do the United States and Europe compare in size? In latitude? In climate? How do you explain the difference in temperature (LV, 4)? Like the United States, Europe has abundant rainfall. It is brought by westerly winds and decreases with distance from the ocean until in southeastern Russia the soil is nearly barren from lack of rain. How does the direction of mountain ranges affect the rainfall of Europe? What mountains separate central from southern Europe? Effect on trade (LVIII)? In the Mediterranean countries there is little rain except in winter. Hence, successful farming depends upon irrigation.

The deeply indented shores of Western Europe give nearly every country a strip of sea-coast. What countries have no coast line? How is commerce affected by coast line? The rivers of the Great Plain are navigable. Why is this? Name the rivers valuable to commerce. What countries do these rivers help? Turn to physical map of Europe and point out the chief farming regions; the mineral regions; the grazing regions; the forests; the fisheries. Name the plants of northern Europe; of southern Europe. To what industries do some of these plants lead? How does climate affect industries in southeastern Europe? In southern Europe? In western Europe? A moist climate favors agriculture and the making of textiles (48).

Written Work.—1. On an outline map of Europe draw the chief rivers and mountain ranges. 2. Locate the mineral products. 3. The vegetable products.

46. Races; Governments; Civilization.—The people of Europe and of North America are almost entirely of the white race. What exceptions are there? Europe, though little larger than the United States, includes twenty different nations, each having its own government and language. Which are absolute monarchies? Limited monarchies? Republics? How does western Europe compare with eastern Europe in wealth, manufactures, education and trade?

In production and trade Europe ranks first among the continents. We may divide it according to races and industries into three sections, western, eastern, and southern Europe. Western Europe is inhabited mainly by the Teutonic, the most progressive of the races. It includes Great Britain, France, Austria, Germany, Switzerland, Holland, Belgium, Norway, Sweden, and Denmark. These nations are marked by density of population, great manufacturing interests, and extensive trade. Southern Europe, including Spain, Portugal, Italy, Greece, and Turkey, is chiefly agricultural, producing fruits, wine, oil, and silk. The people are mainly of the Latin race. Eastern Europe includes Russia, Hungary, Servia, Roumania, and Bulgaria. Farm crops and stock are the chief products, and the ruling people are, except in Hungary, of the Slavonic race. From a study of the following table you will see what seems to be the relation between intelligence and trade.

SECTIONS.	POPULATION PER SQUARE MILE.	VALUE OF FOR- EIGN TRADE PER PERSON.	CANNOT READ NOR WRITE.	SUPPORTED BY THE STATE (PAUPERS).
Western Europe.....	340	\$120	5%	3%
Southern Europe.....	130	15	65%	15%
Eastern Europe.....	110	12	70%	10%

FIG. 28.

Western Europe can support a large population because it has many industries which give employment to thousands of people. Southern and eastern Europe, where there are fewer profitable occupations, furnish the most of the immigrants that come to America. Remembering that manu-

facturing is most expensive in western Europe, we may learn from Fig. 30 that there is more wealth and intelligence, and less poverty and ignorance in manufacturing and commercial countries than in those that are mainly devoted to farming and herding.

Written Work.—1. On outline map of Europe write in each country its race and leading industry. 2. Write a paragraph comparing Russia and France in regard to government and industries. 3. Compare Belgium with Italy as to industries, referring to natural resources and climate as causes of difference.

47. The United States and Europe.—British trading companies established the first English colonies in America and developed the country in the interest of commerce (see London and Plymouth companies, U. S. histories). But in those days the British Government thought only of its own interests. "The only use of colonies," said one Englishman, "is to furnish freight for our ships and a market for our goods." Manufacturing in the colonies was forbidden, and trade allowed with England only. In this way a dispute grew up over production and trade which led to the Revolutionary War and the independence of the United States. Long after the Revolution, this country remained dependent on Europe for manufactured goods, exchanging for them lumber, fish, tobacco, and indigo.

The wars of France and England and their interference with our seamen led to the War of 1812. Our victories in this war secured respect for our flag and safety for our ships. The interruption to trade caused by war led to an increase in home manufactures. The invention of the cotton-gin had already led to the export of cotton, and the building of railroads and canals that opened the Mississippi Valley to trade led to the exporting of grain and meat to the overpopulated manufacturing countries of Europe. These still form half our exports, being worth over seven hundred million dollars a year. Our export of manufactured goods has, however, continually increased. In 1820, 7½% of our exports were manufactures, in 1904, 32%. Owing to labor-saving machinery and skilled workmen much of our manufacturing is conducted at less cost than in European countries. This enables us to pay high wages, and yet produce cheap goods.

While we were spending our energies in opening up new lands and in developing railroads most of our manufactures were consumed at home, and we cared less about trade with foreign nations. But now that we are beginning to export more manufactures, we are coming into competition with European merchants in Asia, Africa, and South America. Moreover, our possessions in the Pacific and the West Indies bring us into closer relations with the nations of Europe. There is increasing travel between the old world and the new, due to improvement in steam navigation. More people go every year from New York to England than from New York to San Francisco, and the cost of the journey is less. Five-sevenths of our exports are sent to western Europe, and half of our imports are bought there. The great manufacturing cities there buy raw materials for their factories and food for their people from us and sell to us many of their manufactures. Thus our commercial and political relations with the people of Europe are very close.

Written Work.—Make a list of our manufactures exported to Europe (Table III).

48. The United Kingdom.—Of what commercial advantage to Great Britain are the following: location? numerous estuaries, or sunken river valleys, along the coast? a mild and moist climate? (such a climate favors textile industries, as all fibers are more easily spun when slightly damp); vast deposits of coal and iron? numerous colonies in every part of the globe? Until recently, Great Britain was the chief manufacturing nation of the world. Which nation is first now (Fig. 9)? England was the first of modern nations to make iron and steel. The first modern ship-canal was made in England. The spinning machine, power loom, the steam engine, and locomotive were first made there. Being the first great manufacturing nation and having many ships and colonies, Great Britain secured a large part of the

world's trade and still holds it (LVI). What is the character of the British people (LVI, 3)? Find four cities located in the coal fields of Great Britain. What are their industries? In what parts of the country are the agricultural industries? What are



FIG. 29.—INDUSTRIAL MAP OF THE BRITISH ISLES.

the leading crops and animals? Where are the fisheries? What kinds of fish are found? What manufactures are produced in Ireland? What cities are engaged in ship-building?

Compare the shipping of Great Britain with that of other countries; the railroads; the iron and steel product; exports; imports. How does the balance of trade stand? More than half the commerce of the world is carried by British vessels. The money which England receives for this helps to offset the trade balance against her. Besides her manufactures and trade Great Britain has valuable fisheries and is, according to size, a great farming and stock-raising country.

Written Work.—1. On an outline map of the British Isles locate chief seaports and steamship lines entering them (p. 93). 2. On an outline map of the world show by color or shading the British colonies.

49. Manufacturing Cities of the United Kingdom.—These are grouped largely in the various coal-producing regions. Locate *Newcastle*. It is the chief city of the northern coal field. What are its manufactures? Find *Sheffield* and *Leeds*. Of what industries is each the center? Find *Manchester*. A ship canal from the Mersey makes this city a port. Of what industry is it the center? What is that mining field called which includes *Birmingham* (LVI, 12)? For what is it noted? Near Birmingham is a region called "The Potteries" because of the earthenware and china made from the clay found in the neighborhood. Find *Cardiff* in Wales. It is the chief of a group of cities using the

coal of the region to feed iron and copper furnaces, and leads in the export of hard coal. Find *Glasgow*. The coal fields of Scotland supply its furnaces and the ship-building works on the Clyde. Several British cities are noted for special products, as *Nottingham* for lace, *Paisley* for shawls, *Belfast* for linen, *Worcester* for china, and *Bradford* for broadcloth. *London* imports and distributes more goods than any other city, but its exports are comparatively small. Why is this? Locate *Liverpool*. What is its commercial rank? Its harbor is kept open at great cost. Its trade is chiefly with America and West Africa. Foods and cotton are imported, and the goods and machinery made in the great factories of northern England are exported. The harbor of *Glasgow* consists of basins and docks built along the Clyde. This city imports ore and raw material, and sends out ships, iron and steel, glass, and other manufactures of the Scottish mills. *Newcastle* exports machinery and coal. Why (Fig. 31)? Locate *Hull*. The cotton and woollen goods of the northern mills are sent from here to the continent of Europe. There is considerable cross-channel trade with the continent of Europe from *Dover* and *Southampton*. American and South African vessels land passengers for London at these ports. *Queenstown*, in Ireland, is a station for American mails.

Written Work.—1. From tables III and IV make a map showing our trade with the United Kingdom (See Fig. 27). 2. Locate on an outline map the chief manufacturing centers of Great Britain and Ireland and write under the city the name of the chief industry of that place.

50. France.—(Review Map Studies, p. 99). Describe the position, size, surface, and climate of France. Why is France better located than England for trade with the East? What are its chief agricultural products (Fig. 30)? What section is noted for horses? The north of France produces breeds of horses famous for size and strength. They have been introduced into all civilized countries. France has long been noted as a fruit-growing country. The farms are small and carefully cultivated. The French farmer is skilful in the production of new varieties of pears, apples, peaches, and grapes. In wine France surpasses all other countries. What others rank high (Fig. 33)? From what countries do we import wine (Table IV)? What other beverages obtained from fruits are produced in France? In what parts are cattle and sheep chiefly raised? The chief iron and steel works are at St. Etienne, where coal and iron occur together. In what other region is coal found? To other centers iron ore is imported from Belgium, Spain, and Germany. Coal comes from Cardiff. Salt mines are worked near Nancy, and building stone, cement, clay, and phosphate are found. The fine clays of central France give rise to the pottery industries of Limoges and Sèvres. "Plaster of Paris" is a well known white cement. How does France rank in manufactures (Fig. 19)? France leads the world in the production of high grade and brocaded silks. The process of making brocaded silk by machinery was invented by a Frenchman of Lyon named Jacquard, and is well known as the "Jacquard" loom. French goods bring a high price because of their artistic workmanship.

A pair of ladies' shoes from Paris, a dress, a hat, a piece of jewelry, or a vase may sell for ten times as much as the same article produced elsewhere. Transportation within the country is mainly by means of rivers and the numerous canals connecting them. How does France rank in railroad mileage (Fig. 20)? In shipping (Fig. 21)? Compare the value of her exports and imports (Table VI). What does she buy from us? Sell to us (Tables III, IV)? Havre is the chief port of entry for American goods.

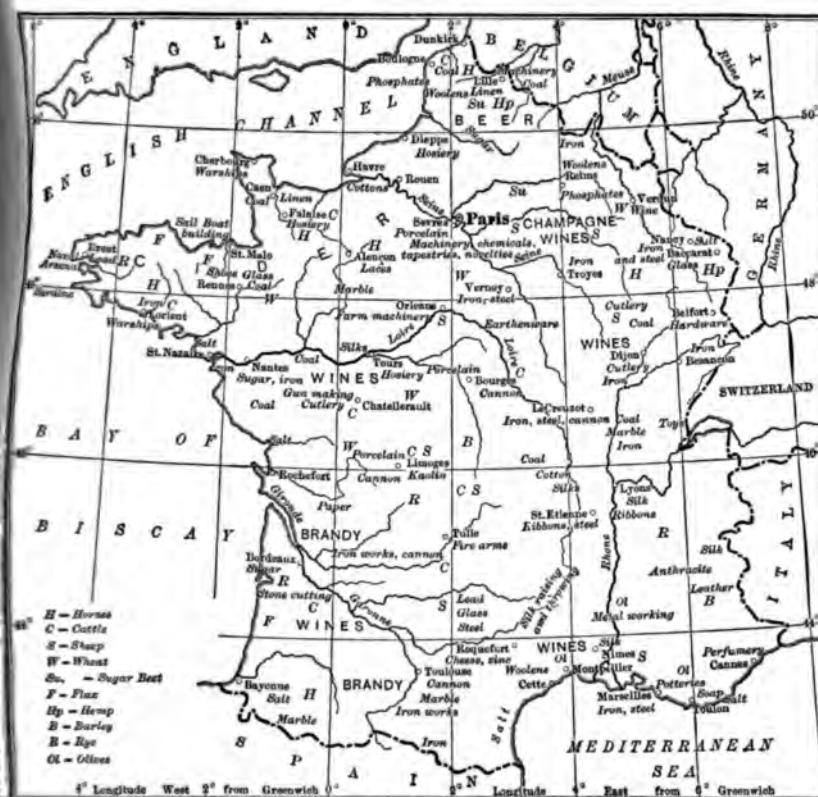


FIG. 30.—INDUSTRIAL MAP OF FRANCE.

Fine cloths, wines, millinery goods, and articles of luxury are sent to America through this port. Cabinet woods from Central America, coffee, cocoa, metals from South America, and coal from Wales are also brought to Havre. Marseilles is the second important port. Its trade is largely with eastern countries and Africa. Wheat from Russia, raw silk from Turkey and Central Asia, cotton from India and Egypt, wool, hides, and skins from Africa are brought into the port of Marseilles.

Written Work.—1. On outline map of Europe locate the chief ports and manufacturing cities of France and write under each its chief product. 2. On a similar map indicate trade with the United States, as in Fig. 27.

51. Belgium.—What part of Europe does this country occupy? What do you know of the population and industries of Belgium (LXII)? What harbor and what navigable rivers has it? What natural wealth favors manufacturing? Belgium produces more manufactured goods per person than any other nation in the world. For what is Liege noted? Ghent? Bruges? Brussels? Ostend (LXII)? Belgium was the first of modern European countries to make woolen cloth, and still leads in this industry. It has, next to Ireland, the finest facilities for making linen. The water of the river Lys is well adapted to the bleaching of flax, and the dense population of the country furnishes the labor needed. This flax is made into fine laces, linens, lawns, and cambrics. Hand-made lace requires much labor. In the city of Mechlin, over two hundred thousand women and girls are lace-makers. What are the total values of Belgium's exports and imports (Table VI)? What part of her trade is with us (Table VI)?

Written Work.—1. On outline map of Central Europe already begun, write our exchanges with Belgium. 2. Make a list of the leading manufactures of Belgium and a city noted for each.

52. Holland and Denmark are the lowest and flattest countries in Europe. For what products are both noted (LXII,

1, 6)? Holland is also noted for its colonial possessions and extensive commerce. Describe its colonies (LXII). Dutch ships distribute colonial products all over the world, and do a large carrying business for other nations. Why is transportation easy in Holland? Smooth wagon-roads paved with brick intersect the country. Railroad building is easy, but many bridges must be built. Why? On account of cheap transportation Holland imports and forwards goods from her ports to the countries of Central Europe. The winds are a great source of power. What use is made of them?

Holland has no coal, iron, or other metals. What effect does this have on her industries? Building materials and timber are also lacking. Brick, tile, and earthenware are made in abundance. Butter, cheese, meat, and oleomargarine are leading exports. Besides jewelry and diamonds we buy from Holland tobacco, tin, fish, hides, and cheese. Where do you think she produces each of these?

Denmark produces and exports mainly milk, butter, and cheese. Beef, cattle, horses, wool, and eggs, are also sold. What is the value of our imports from Denmark? Why so small?

They consist chiefly of hides, wool, and rennet, a substance used in cheese-making. We sell to Denmark oil-cake, grain, flour, cotton, and kerosene. Manufacturing is little developed on account of a lack of minerals. Flour, beet-sugar, and liquors are made, and Copenhagen builds ships out of Norway lumber. The most careful attention is given to butter-making,



FIG. 31.—INDUSTRIAL MAP OF BELGIUM AND THE NETHERLANDS.

There are over one thousand steam factories, where it is packed and salted to meet the demands of all markets. Enormous quantities are exported. Great Britain and Germany are the largest buyers of Dutch and Danish articles of food.

Written Work.—1. On outline map of Europe write our exports to Holland and Denmark, and the things we receive from them. 2. On a similar map locate ports, manufacturing cities, and the chief products.

53. The German Empire.—(Review Map Studies, p. 99, and LXI.) What is the surface of Germany? Its climate? Mineral resources? Its rank in production of coal? Iron and steel? Copper? Silver? What are its agricultural products (Fig. 33)?

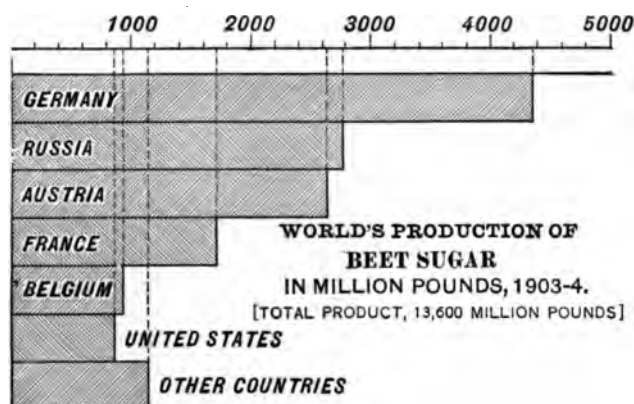


FIG. 32.

A naturally poor soil in most of the empire has been made very productive by skilful farming, and yet she does not produce enough food for her people. How does Germany rank in the production of wheat? Rye? Oats? Barley? Sugar? Lumber (Figs. 2-6, 36)? Potatoes and rye bread form the chief food. The "black bread" of the German peasants is made of rye flour. The larger part of the northern plain of Europe has a light, sandy soil, suitable for rye, though too poor for wheat. What is the rank of Germany in manufactures (Fig. 19)?

Next to the United States she has made more progress in manufactures than any other country. She sends us fine knives, scissors, and other cutlery,

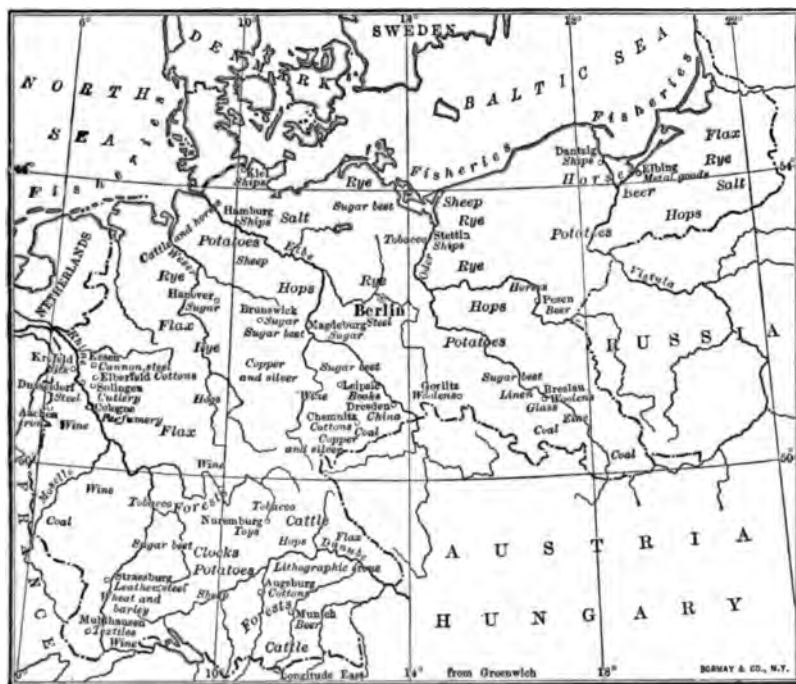


FIG. 33.—INDUSTRIAL MAP OF GERMANY.

and we sell her agricultural machinery. Germany sends many hides and skins to us to be tanned, and imports shoes and shoe leather from us. Where is much tanning done in this country (Table II)? What are the chief manufactures of Germany? What German state is noted for woolen goods? For wines? What is the total value of her exports and imports (Table VI)? What part of her trade is with us (Table VI)? What are the chief articles of our trade with Germany (Tables III, IV)? What are the chief German railroad centers? Trace routes to Vienna, Paris, St. Petersburg, Constantinople, and Rome. Germany is connected also by canals and rivers with the neighboring countries with which the bulk of her trade is carried on. Many of these are owned by the government. What do you know of German canals (LXI)? Steamers go up the Rhine and by canal to the Rhone. From map, Fig. 35, tell what city is noted for pottery? Toys? Wine? Woolen and linen goods? Printing? What are the great German ports?

Written Work.—1. From Tables III and IV, write on the outline map of Central Europe our imports from and our exports to Germany. 2. On a similar map locate the chief German seaports, manufacturing towns, and a leading product of each.

54. Switzerland (Review LXIII) has to pay large sums of money to other countries for carrying her goods. Why is this? How does the surface of the country affect production? Next to Norway, Switzerland is the poorest farming country in Europe. She has few minerals. Hence manufacturing and dairying are the only profitable occupations. Transportation is well provided for. Fine wagon roads are built along the valleys and through the mountain passes. Several tunnels connect the country with Italy.

Swiss scenery is one of the financial resources of the country. Travellers spend over seventy million dollars there annually. The railroads earn over ten million dollars annually. One-third of the people are engaged in manufacturing. The products are noted for *quality* rather than *quantity*. No attempt is made to produce cheap goods. What cities are noted for silks (LXIII)? Thousands of hand looms in Zurich and St. Gall turn out the richest of silks, laces, and embroideries. Swiss muslins are sold all over the world. Geneva watches and engraved and enamelled jewelry command high prices. Straw braid for hats, wood-carvings, leather goods, fine machinery, and scientific instruments are other characteristic products. The Swiss maintain technical schools to train workmen for their factories. Besides textiles, we import cheese, clocks and watches, aniline dyes, and rennet from Switzerland, and sell her raw cotton, iron and steel goods, and chemicals. Swiss trade is mainly with her neighbors, France, Germany and Italy.

Written Work.—1. On outline trade map write our exports to and our imports from Switzerland. 2. On a similar map locate manufacturing cities and the chief product of each.

55. Norway and Sweden are now distinct kingdoms. Describe the surface of these countries (LVII, 9). Less than one-twentieth of the soil of Norway and one-tenth of that of Sweden is fit for cultivation, thus the population is sparse. Half the Swedes and one-fourth the Norwegians are farmers, and yet the land is so poor that food has to be imported. Norway has more sailors and ships, according to her population, than any other country. Compare with other nations (Fig. 21). The numerous swift mountain streams furnish power for 5000 saw mills. The forests of Norway are nearly exhausted, but Sweden is the largest lumber *exporting* country in the world. The mining and manufacture of iron is the second largest industry in Sweden. Swedish iron made from charcoal is used for hardening steel. How does the country rank in this product (Fig. 17)?

The fisheries are very valuable, employing fifty thousand men. The banks near the Lofoten Islands are, next to those of Canada, the most valuable fishing-grounds in the world. Manufacturing is not extensive. Coarse

textiles, wood-pulp, and matches are the chief ones. The United States buys iron, wood-pulp and fish of these countries and sells them cotton, oil, bread-stuffs, farm tools, leather, and tobacco. How does the balance of trade stand with them (Table VI)? From what source besides exports does money come into these countries?

Written Work.—1. Color on outline map of the world the lumber producing countries (Fig. 6). 2. Fill out on outline map of Norway and Sweden the exports to and imports from the United States.

56. Spain and Portugal (LVIII).—Describe the surface; climate; natural resources. The dry climate of Spain is due to the mountains that border the coast. Only the coast plains and river valleys are fertile. Agriculture in the central plateau region depends on irrigation. What are the mineral products? These are not much used in manufacturing, but are exported as raw materials to be manufactured in Great Britain, Germany, and France. Seventy-five per cent. of the people are illiterate, which helps to account for the backward condition of all industries in

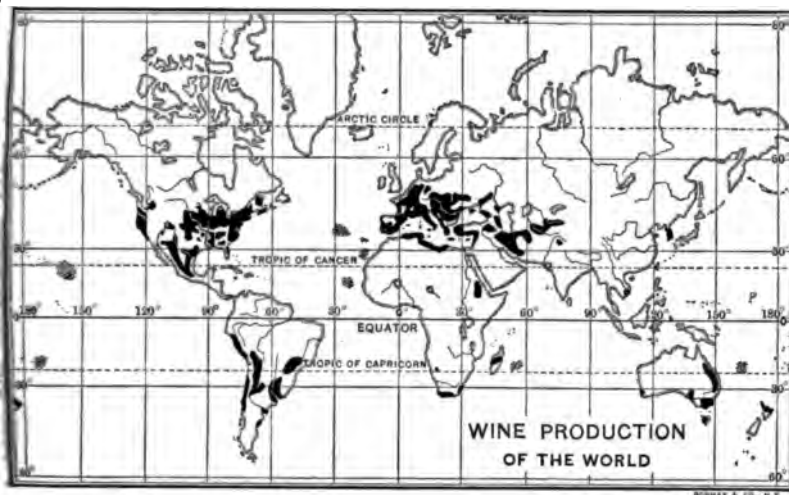


FIG. 34.

Spain. How does Spain rank in the production of barley (Fig. 34)? Wool (Fig. 45)? Coal (Fig. 11)? Spain is the largest iron-exporting country in Europe. In what part is the iron found (p. 87)? The port of Bilbao ships most of it? How do these countries rank in copper (Fig. 13)? What is the silver production of Spain (Fig. 25)? Besides cotton we sell to Spain chiefly tobacco, lumber, and kerosene, and receive from her cork, wine, fruits, nuts, pyrites, and licorice. From Portugal we receive cork, wine, argol, rubber, and cocoa. From what colonies might Portugal obtain the last two articles (LXXVIII)? Pyrites is an iron ore from which sulphur is obtained. Argol is a name given to the settlings of wine: from it important medicines are made. Our exports to Portugal are the same as to Spain. Compare the values of the exports and imports of each of these countries and find the balance of trade (Table VI).

Written Work.—1. On trade map write our exchanges with Spain and Portugal. 2. Locate on outline map of Europe the chief cities and ports of Spain and Portugal; tell what each city is noted for (LVIII).

57. Italy.—What does Italy comprise (LVIII)? Describe its surface. Its fisheries. What are the mineral products? Is there coal? What are its agricultural products? Much of the land is rich, but it is mostly owned in large estates, and does not produce food enough for the people. Many Italian peasants

emigrate, large numbers coming to this country. The lack of coal is a drawback to manufacturing, yet cotton, silk and woollen goods are made in the large cities, fine glass at Venice, cutlery at Milan, straw goods at Leghorn, and coral jewelry at Venice and Florence. Venetian glass, Leghorn hats, and Etruscan jewelry are famous. Red coral is found near the west coast; its manufacture is an old Italian industry, amounting to many million dollars a year. What is the value of the foreign trade of Italy (Table VI)? How do her exports and imports compare? What is her rank in shipping (Fig. 21)? She sells more goods to her neighbors, Switzerland, Germany, and France, than elsewhere; these are chiefly raw materials and fruits. Describe her trade with us (Tables III, IV). We also buy of Italy sulphur, olive oil, cheese, straw braid, marble, and wine, and sell to her tobacco, lumber and kerosene.

Written Work.—1. Locate on map the chief Italian cities and write a statement about each. 2. On outline map indicate our trade with Italy.

58. The Balkan States take their name from the Balkan Mountains.—Locate *Greece* (LIX). Describe surface and coast. What are its natural divisions? Its occupations? Its chief exports? Greece imports about two-thirds of the grain and flour it uses. It buys coal of Great Britain, and petroleum of Russia. Of the United States Greece buys kerosene, cotton, and machinery, and sells us fruit, cheese, marble, licorice, and valonia (LIX). How do its imports and exports compare (Table V)? What is its chief port? What part do the Grecians take in the trade of the Levant (LIX)? They pay in part for their imports with the earnings of their ships. What other countries do this (48, 55)?

Of what does *Turkey* consist? What is the surface? Climate? Coast? Resources? What are the manufactures of Constantinople? Adrianople? Salonica? What is the value of its exports? Imports (Table VI)? What are its chief exports (LIX)? Our chief imports from Turkey are carpets, tobacco, hides, and opium. Find value from Table IV. We sell to her meats, cotton, steel, and leather. Value? What are its harbors (p. 89)? What is the "Golden Horn"?

There are very few schools in Turkey, and the government is bad. As the Turks have no such carrying trade as Greece, they have nothing to offset the excess of their imports over their exports, and the country is practically bankrupt. Constantinople is a famous market for oriental goods, especially carpets and rugs. Many merchants in America and Europe send buyers there every year.

Roumania, Bulgaria, Servia, Montenegro.—Locate these states (map, p. 98). Describe the surface of each (map, p. 87). What are the chief occupations in each? What are the products? Find the chief cities in each. These countries are now free from Turkey under whose rule they long suffered from bad government. They are improving in education and industries. Their trade is almost entirely with European countries. Yet, like Russia, they buy agricultural implements of us. Our imports from these states are almost entirely hides and goat skins.

Written Work.—1. Draw an outline map of the Balkan States and locate the chief ports, manufacturing cities, and productions. 2. On a similar map write our exports to these countries and our imports from them.

59. Austria-Hungary.—Locate Austria-Hungary (LXIII). What is its surface? Its minerals? Its agricultural products? Half the people are farmers. How does it rank in the production of wheat (Fig. 2)? Rye (Fig. 31)? Barley (Fig. 34)? Where is its manufacturing region? What are its chief manufactures? Locate the following cities and tell for what industries each is noted: Vienna; Prague; Gratz; Brunn; Budapest; Szegedin; Lemberg; Williczka; Berchtesgaden. Compare the imports and exports of Austria-Hungary (Table V). How does it rank in shipping (Fig. 21)? What is the value of its trade with us (Table V)? Its trade is almost entirely with northern Europe. It sells half its food exports to Germany, and buys one third of its imports there. The leading imports are cotton, coal, silk, wool, copper, and machinery. She sells to us flax, beet-sugar, glass-ware, beer, and hides, and buys raw cotton, copper, kerosene, and machinery. It has considerable trade with eastern countries, supplying the leading imports of Roumania, Bulgaria, and Servia, and handling their exports. What is peculiar about the government (LXIII)? The progress of the country is much hindered by the quarrels of different races forming the population.

Written Work.—1. On outline map of Central Europe place the chief cities and railroads of Austria-Hungary. Write a statement about each manufacturing city. 2. Write a paragraph comparing the industrial development of Austria-Hungary with that of Germany, giving reasons for the difference. 3. On trade map place our exchanges with Austria-Hungary.

60. Russia.—Where is Russia? What is its size (LVII)? Its climate? Its surface? Its mineral wealth? Animal? Vegetable? What are the chief pursuits of the people? Nine-

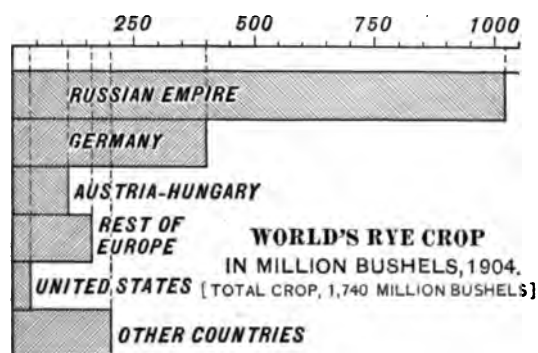


FIG. 35.

tenths of the people are farmers. Russia is the greatest grain-raising country in the world. (Compare Figs 2, 4, 35, 36.) The manufacturing is done mostly in a few large cities; it consists chiefly of cotton goods, articles of leather, wood, steel, clay, and paper, chemicals, tobacco, and sugar. Home manufacturers nearly supply the home market. What do you know of government and education in Russia? What are the peculiarities of its internal trade (LVIII, 3)? The trade of the country is mainly domestic. There is a high tariff on all manufactured goods for the purpose of encouraging home production. Our agricultural implements and machinery are admitted at a lower rate than other goods, to improve the farmer. Germany and Great Britain have about half the Russian trade. What is its trade with China (LVII, 6)? With what nation is its chief maritime trade? What are the amounts of its exports and imports (Table VI)? How do they compare? What is its trade with us? Russia sells us hides, wool, hemp, and flax, and buys cotton, copper, and farm

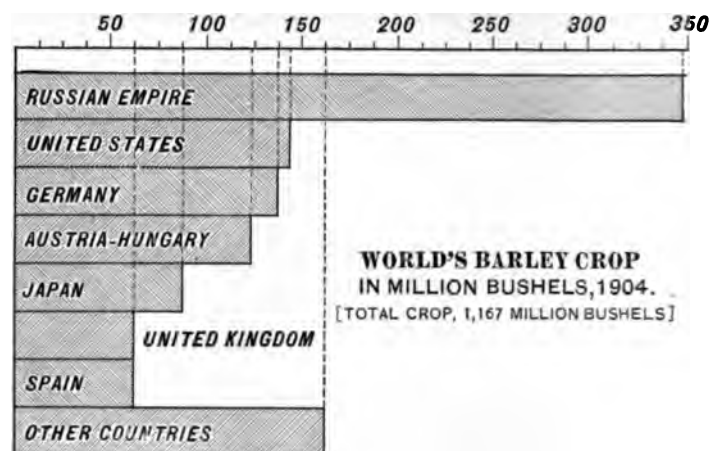


FIG. 36.

machinery, which is the best in the world (Table III). What is its chief commercial city (LVII, 8)? For what industries is Moscow noted? Warsaw? Odessa? Cronstadt? Kazan? Saratov? Archangel? Astrakhan? Riga?

Written Work.—1. On outline map of Europe write our exports to Russia and our imports. 2. Locate the chief cities and write a statement about each.

SOUTH AMERICA.

61. Physical Features.—(Review Map Studies, p. 76.) Compare the Atlantic and Pacific slopes as to extent and rivers. Which has the greater commercial advantages? Why? What products are brought down the Amazon? The Orinoco? The La Plata? How are goods transported from the Andes plateaus to the coast (LIII)? Which coast is more productive? Why? Compare the climates of the eastern and western coasts at the equator; at the tropic of Capricorn; at 10° South latitude. Account for the difference. Describe the climate of the Andes Highland; of the Selvas; of the Pampas. What is the effect on products?

Commerce is greatly hindered by natural impediments to transportation. Among these are poor harbors, mountain ranges cut by swift streams and gorges, unhealthy coast plains, and interior marshes.

Written Work.—1. On outline map of South America write the leading plants cultivated; the leading minerals. 2. On another map draw the navigable rivers, and name them.

62. The People of South America.—About 80% of the people of South America can neither read nor write. Most of the inhabitants of the interior are wild Indians. How does intelligence affect production? Why will an intelligent farmer raise more and better crops than an ignorant one? Name some occupations that ignorant laborers can not engage in.

The people of South America have republican forms of government, but ambitious leaders keep them disturbed by civil wars. In what ways does this disturb production? Good wagon roads are found along the coast, but in the interior the roads are chiefly mule paths. Numerous lines of railroad run from coast towns for short distances into the interior, but the great heart of the continent, except in Argentina, is still a wilderness.

The La Plata countries and Brazil have been greatly helped by foreign immigration and foreign capital. Nearly 2,000,000 Europeans have come to these countries during the last twenty-five years, and have built up important manufacturing industries. British, French or German capitalists control the more important railroads, mines, and the larger farming and stock-raising industries. What have you learned about the people of South America (L. 5)?

Written Work.—1. Make a list of the occupations that a person who does not know how to read and write cannot engage in. What does this show about the value of education? 2. Write a paragraph on the races of South America.

63. Our Trade Relations with South America.—In our trade with the countries of South America we can see the effects of distance and of poor transportation. From Table VI find our share of the foreign trade of Venezuela; of Colombia; of Brazil; of Argentina, Chile, and Peru. How does distance seem to affect it? What is the latitude of New York? Of Rio? How much farther east is the latter port? Measure the distance from Para to Europe; to New York; notice that South America is about as near to Europe as to the United States.

But a great hindrance to our trade with South America is the lack of regular and frequent steamship-service. Fifty European vessels to one American vessel enter the ports of Rio and Valparaiso. The South American merchant ordering goods from Europe is sure of their prompt delivery; but he may have to wait a month before receiving them from the United States. The European merchant also allows him a longer time in which to pay for them.

South America needs our manufactured goods and we need the raw products and foods of her tropical countries. Many of these now go first to Europe and are then brought to us, thereby increasing the cost. Many American goods also, destined for South American ports, are first carried to Europe and then forwarded to their destination. This is because there is better service between Europe and the United States and between Europe and South America than there is between the United States and South America. Thus both our exports and imports are carried at the greatest disadvantage. It is also said by our consuls residing in South America that American merchants fail to secure trade because they do not prepare goods according to the tastes and needs of the South American people. Circulars and labels that are put on goods are printed in English, a language which the people cannot read. What languages should be used?

Written Work.—1. Make a list of all the things which hinder our trade with South America and tell how each affects trade.

64. Brazil.—Describe the location and physical features of Brazil (LI). Compare with the United States as to size and population. What are the products of the coast plain? The highlands? The Amazon Valley? In what parts of Brazil do you find stock (p. 77)? Are there many harbors along the coast? Name the ports that have railroads leading inland (Map, p. 77). These roads bring the beef, hides, cotton, coffee, and other products of the coast and highland regions to the seaboard. Many of these coast towns have developed manufacturing industries.

Cottons, woolens, silks, and carpets are made at Rio, Nictheroy, Maranhao, Porto Alegre, and Rio Grande do Sul. There are numerous sugar mills and a few refineries in Campos, Bahia, and Pernambuco. Flour, leather goods, and articles of wood are made at various places.

Most of the people of Brazil are engaged in agriculture. The cultivated lands are almost entirely within a few hundred miles of the coast. Coffee and sugar are the leading products. Cotton, hides, cocoa, tobacco, are next in value.

What other farm and forest products come from Brazil? What of its mineral wealth? Coal and petroleum are both found, but are mined in small

quantities. Gold and diamonds are the most valuable mineral products. Monazite sand, used in making mantles for incandescent electric lights, is a growing export. Besides coffee, rubber, and sugar, Brazil sends to the United States, dyes, nuts, cocoa, and hides. Our largest exports to that country are wheat flour, kerosene, machinery, and hardware. Besides these, lard and bacon, scientific apparatus, cottons, cotton-seed oil, and engines are most important.

Written Work.—1. On outline map of South America write the chief productions of Brazil and the leading towns and seaports. 2. On a similar map write our exports to and our imports from that country. 3. On outline map of the world shade the coffee-growing countries (see index under coffee).

65. Coffee and Rubber are the chief products of Brazil, forming five-sixths of the total exports of the country. The eastern slopes of the Brazilian Andes are the richest coffee region in the world. The soil is a reddish volcanic ash, rich in iron, which seems necessary to successful coffee culture.

The original home of the coffee tree was in Yemen, in Southern Arabia, where Mocha, the most expensive variety, is still grown. The tree is an evergreen growing to the height of about 25 feet if left to itself, but it is pruned down to grow as a spreading shrub to an average height of ten feet. It grows only in the tropics, and best on well-watered mountain sides. It cannot endure the hot sun, and so on the lower mountain levels is cultivated in the shade of larger trees. The fruit is a berry of the size and appearance of a cranberry. It contains usually two "beans," which are removed by crushing or "pulping" the fruit when ripe. The coffee beans are then dried in the sun for a few days, after which the seed coats which cover them are removed by machinery. The coffee is then graded according to size by allowing it to roll down a tube or sieve pierced with holes of different sizes. But the quality does not depend on size alone. The full-rounded beans are the best. In Arabia and Turkey skilled workmen sort the coffee by hand, the best grades of hand-sorted coffee often bringing four or five dollars a pound. Coffee is put up in bags of 132 pounds each and is then ready for export. What part of the world's supply of coffee does Brazil produce?

The name "*India-rubber*" indicates what was once the chief source and use of this substance. An American named Charles Goodyear discovered in 1842 a way of hardening rubber by melting sulphur with it so that it could be worked into any form desired. This process is called "vulcanizing," and was the beginning of one of the greatest of our manufacturing industries.

Where is rubber obtained (index)? The chief industry of the Amazon is rubber-gathering. The men go in boats up the river and its branches to the rubber groves. The trees are gashed with a hatchet and a cup put underneath the wound to catch the milky juice which slowly oozes out. When a quantity of the sap is obtained it is taken to the camp and coagulated. This is done by dipping a wooden paddle in the juice and then holding it in the smoke from burning palm nuts. The juice thickens and changes to the familiar reddish-brown of rubber. The paddle is then dipped again and again until a coating of rubber weighing several pounds adheres to it. This is then cut through on one side and removed. The rubber is taken by boats to Para or Manaos, where it sells for about fifty-five cents a pound. The usual annual product of Brazil is about 3,000 tons, half of which is exported to the United States.

Written Work.—1. On outline map of the world indicate by shading the coffee-growing regions. 2. In the same way indicate rubber-producing regions. (See maps and index.)

66. The Guiana Colonies and Venezuela.—What nations own the Guiana colonies (LI)? Describe the surface and climate; animal life; productions and exports. The climate of these colonies is too unhealthy for Europeans, and the work on the plantation is done by negroes. Cane sugar has long been the chief product, but the fall in price due to the competition of beet sugar has compelled many planters to raise coffee, cocoa, tobacco, and rice instead.

The low strip of coast is the only cultivated land; back of this is a rough, mountainous country where considerable gold is washed out of the sandy beds of mountain streams. Our imports from the Guianas are cocoa, sugar, and small amounts of coffee and phosphate rock. We sell them flour, meat, cloth, kerosene, steel, and manufactures of wood.

Venezuela lies mainly in the Orinoco Valley. Describe the surface of the other parts. The country is largely forest-covered and unexplored. The northern highlands about Caracas and Valencia are the chief farming region. What are the two leading products (LI)? Many cattle are raised on the llanos. The hides are the most valuable part of the animal and are exported. What metals are mined? Next to coffee and cocoa, asphalt is the largest export. For what is asphalt used? Rubber, cabinet and dyewoods, vanilla, and copaiba balsam, a valuable medicine, are obtained from the forests.

As in the case of other South American countries, civil wars have retarded the growth of population and industries. How many people are there to the square mile in Venezuela? Compare with the United States. What are the chief cities? They are built on the highlands at a distance from the sea and are connected with the nearest ports by short lines of railroad. The United States has half of Venezuela's trade, buying most of her coffee and asphalt and selling her cotton, butter, lard, hams, flour, kerosene, and lumber.

Written Work.—1. On an outline map of Venezuela, locate chief towns and products. 2. On an outline map of South America write our imports from Venezuela and our exports to that country.

67. Colombia.—In what natural divisions of the continent does Colombia lie (LII, 4)? How do the Andes affect the climate and vegetation (LII, 5)? How do they affect transportation? What are the products of each natural section? The plateaus along the Cauca and Magdalena rivers are the most valuable and healthful parts of the country. The climate and products of these plateaus are those of the temperate zone. Along the coasts, sugar, coffee, cacao, and fruits are grown. The mountain regions are rich in minerals. Coal and iron occur together near Bogotá and have given rise to iron industries. But the cities of Colombia cannot use home coal, for it costs more to bring it from the mines on the backs of mules than to import it from the United States.

A large part of Colombia is in the upper Amazon Valley. Much of it is forest-covered, yielding the same products as Venezuela. The llanos also extend into Colombia, where many cattle are raised, and leather and shoes are made from the hides at Barranquilla. Cattle, hides, "jerked" beef, and tobacco are largely exported to the West Indies. Coffee, cocoanuts, hides, and bananas are sent to the United States in return for our cottons, flour, meats, iron and steel, shoes, coal, and kerosene. What is the entire value of Colombia's foreign trade (Table VI)? What is our share of it? What is the density of population? Name some circumstances that interfere with production in Colombia. Manufactures are very crude, embracing hats, shoes, iron, candles, soap, and liquors.

Written Work.—1. Draw sketch map and locate chief towns and industries. 2. On the trade map write our exports to and imports from Colombia.

68. Ecuador.—(LII.) This country is crossed by the Andes in two lofty ranges. What surface divisions do they make? Effect on climate? Both the eastern and western slopes are forested, also the northern part of the coast plain. Rubber, cinchona, ivory, and Brazil nuts are found. The warm lowlands produce cacao, sugar, and cotton. The mountain slopes yield coffee. The plateaus yield grain and fruits, but the cost of carrying them down to the coast towns by mules is so great that foodstuffs are imported. What minerals are found? Gold

is the only metal mined. The only important manufacture is Panama hats, in which the workmen are very expert.

These are made from a fiber obtained from the midrib of the leaf of the screw pine. The fiber is very fine and must be plaited under water, or where the air is moist. The hat is woven in one circular piece and then pressed into any desired shape. They command a high price, ranging from five to fifty dollars each. The name comes from the fact that these hats were first imported by way of the Isthmus of Panama.

Ecuador is the largest producer of cocoa, which forms three-fourths of the exports. It is exported mainly to France. Much goes also to Spain, Great Britain, and the United States. Rubber, coffee, ivory, and hides are other leading exports. Woollen and cotton goods are the largest imports from Europe. From the United States Ecuador imports lard, cottons, flour, iron and steel, and kerosene.

Transportation is poorly provided for. A railroad is about half completed from Guayaquil to Quito. Besides this there are only bridle paths. Trade with the United States goes by way of the Panama Railway; with other countries, by steamer around Cape Horn.

Written Work.—1. Write on trade map our exports to Ecuador and our imports from that country. 2. Write a paragraph on the natural divisions and products of Ecuador.

69. The Cacao Tree grows best in a warm, moist climate, on low grounds where the soil is rich and deep. The region near Guayaquil has upwards of 40,000,000 of cacao trees. The Island of St. Thomas in the Gulf of Guinea, the Venezuela coast, Ceylon, and Java rank next in the production of cacao.

The tree is an evergreen with smooth leaves, growing to a height of eighteen feet. The fruit is a fleshy pod, thicker at the center than at the ends. It has five cells, each of which contains from twenty to thirty thick, almond-shaped seeds. The preparation for market consists in removing the seeds from the pods and burying them in green leaves, where they are allowed to ferment for a week. The heat of fermentation removes a bitter taste and prevents the seeds from sprouting. They are then dried and rubbed to remove any gummy matter which adheres to them. The seed coats when removed are "cocoa shells" and are used for making the drink called "cocoa." The beans contain an oil which is extracted by heating and forms a nutritious food known as "cocoa butter." When the beans are ground to a dry powder we have cocoa. When ground with sugar and pressed into cakes the product is called "chocolate."

All forms of cocoa are valuable foods and much used in tropical countries. Spain, France, Portugal, and the United States are also large consumers.

Written Work.—1. On outline map of the world shade all the regions producing cacao. 2. Write on the uses of the products of the cacao-tree.

70. Peru.—(Review LIII.) What is the size and population of Peru? Density of population? Half the people are native Indians. Describe the climate. Why is the coast region rainless? Cotton, coffee, and sugar are cultivated with the help of irrigation. What have you learned about Peruvian cotton (10)? The products of the plateaus and forests resemble those of Ecuador. What do you know of the mines of Peru? The entire products of the mines are worth many millions of dollars annually. Most metals are exported in the ore, to be smelted and refined in foreign countries. What does this teach us of the civilization of the Peruvians? What are the important railroads of Peru (see map of South America)? They connect the seaport towns with the mines and farming centers of the interior.

A plant peculiar to this part of South America is the coca shrub. A medicine, cocaine, much used at present in surgical operations, is made

from it and is exported. What animal furnishes an article of export? Guano is gathered on the Island of Lobos near the coast. Straw hats, cotton and woolen cloth, boots and shoes, and other common necessities are manufactured at Lima and Cuzco.

The native Indians of the Amazon Valley ship large quantities of rubber down the river from Iquitos. Cinchona, dyes, and medicinal plants are also gathered in the forests.

Peru has her largest trade with Great Britain and Germany, the United States standing third. Find what part of Peru's trade we have (Table VI). Her chief exports to this country are sugar, cotton, coca, wool, hides, and guano. She imports from the United States machinery, lumber, flour, wagons, cars, and kerosene.

Written Work.—1. On an outline map of Peru locate the chief cities and the railroads. 2. On trade map write our exports to Peru and our imports from that country.

71. Bolivia has fertile prairies in the southeast and dense forests in the north. Describe the highland region (LIII). By what two river systems may Bolivian commerce reach the sea? By what two railroads? Besides these, pack-trains of mules and llamas carry ores to the railway in Argentina whence they are exported by way of Buenos Aires. Mining is the leading industry. What metals are found? Borax is gathered from the Ascotán lakes in the southwest, and some gold, bismuth, and antimony are found.

The plateau regions, where three-fourths of the people live, produce corn, wheat, barley, fruits, and vegetables. The country about Tarija is a very garden, and noted for large crops. From the forests of the North increasing amounts of rubber, cinchona bark, and coca are sent down the Amazon to Para, and stock-raising is increasing on the eastern plains. The Bolivians are few in number and poor, and English and German money, skill, and machinery carry on the mining operations. Trade is hindered by high freights, and consists in the exchange of ores and metals for cotton and woolen goods, machinery, and hardware. No goods from Bolivia reach the United States, except through other countries, and we sell her, directly only, a small amount of cotton cloth and hardware.

Written Work.—1. Write a paragraph on the trade routes of Bolivia. 2. On outline map locate the cities and productions.

72. Chile is, next to Argentina, the most progressive of South American countries. What minerals are produced? Copper is the chief metal. Give rank of Chile in copper production (Fig. 13). Gold, sulphur, silver, guano, and coal are found. But nitrate of soda is the most valuable mineral deposit. What do you know of this (LII)?

The nitrate deposits lie near the surface in the desert of Atacama. It is broken up by blasts introduced below the beds. It is refined by dissolving the crude rock in hot water from which the pure nitrate of soda crystallizes in cooling. Iodine, a drug used in medicine and photography, is obtained from the liquid left after crystallization.

The long, narrow valley of Central Chile is one of the most fertile regions in the world, and supports three-fourths of the entire population. Large numbers of horses, cattle, pigs, sheep, and goats are raised. The grains of the temperate zones, fruits, and vegetables flourish. Southern Chile has large forests, and vehicles and furniture are made. What other manufactures has Chile (LIII, 11)? Chile has fine highways, nearly 3,000 miles of railroads, and about 700 miles of navigable rivers. How does she rank in foreign trade (Table V)? How does the balance of trade stand?

Our imports from Chile are mainly nitrate of soda, wool, copper, and lead. The nitrate is used in making fertilizers and chemicals, such as niter and washing and baking soda. Gunpowder is made from niter, sulphur, and charcoal. How do our imports compare in value with our exports? These

are chiefly cottons, kerosene, iron and steel goods, lumber, farming tools, and machinery.

Written Work.—1. Make a sketch map of Chile and locate the railroads, sea-ports, and cities; write a statement about the trade of each port. 2. On trade map write our exports to Chile and our imports from that country.

73. Argentina is the chief farming and stock-raising country of South America. It has the most railroads and the largest commerce. In manufactures it stands next to Brazil. How does the lack of coal and water-power affect them? Describe the surface (LIV). Climate. The rainfall, except in the north-east, is light, much of the soil requiring irrigation. Explain this: How does Argentina rank in sheep (Fig. 36)? Cattle (Fig. 9)? Wool (Fig. 40)? Wheat (Fig. 2)?

About 30,000,000 cattle and 75,000,000 sheep are pastured on the pampas. The public lands are sold in large tracts to the ranchmen, who divide it into sections and fence it with wire. A few men can thus take care of large herds. The ranch owners are mostly Englishmen and Scotchmen. The best cows are kept for dairy purposes. The best beef cattle are shipped alive

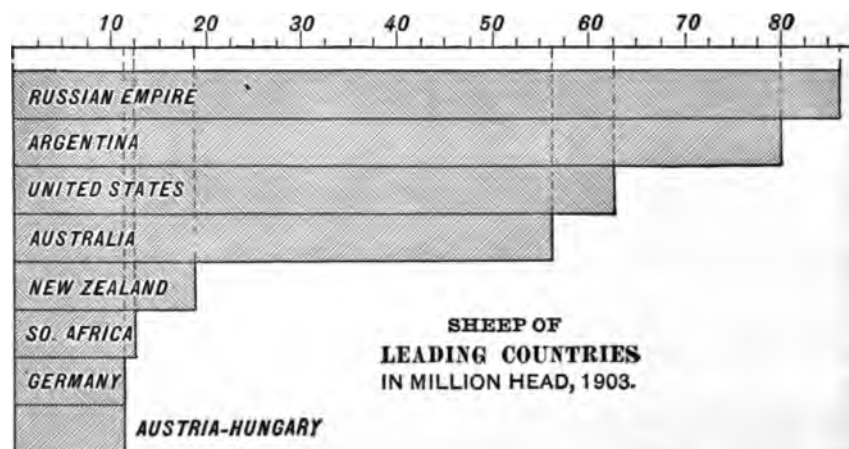


FIG. 36.

to Europe. Fat sheep and lambs are also sent in the same way. But the live animals are only equal to one-sixteenth of the frozen and dried beef exported. The largest refrigerating plant for meat in the world is at Buenos Aires. A million carcasses of beef and three million of sheep are frozen and exported annually.

Wheat, corn, flax, and sugar are the chief farm crops. The production of grain increases and stock-raising diminishes as the population grows more numerous. Argentina has mines and forests in the far north where railroads have not yet reached. A small amount only of gold, silver, and copper is mined, and some cabinet wood is exported. Manufactures are mainly grain sacks, leather, textiles, and hats. Structural iron is made and some sugar is refined.

Argentina imports textiles, clothing, pottery, glass, and machinery from Great Britain and Germany. From the United States she receives farming machinery, oil, lumber, twine, wire, railroad supplies, tools, and hardware. Next to animal products and wheat, flaxseed and sugar are important exports. We buy of Argentina raw wool, hides, goatskins, and the bones, horns, and hoofs of the cattle slaughtered. What use do we make of these things?

The Falkland Islands belong to Great Britain. They produce a nutritious grass for cattle called "tussac grass." Cattle, horses, and sheep are extensively raised. The exports are wool, hides, skins, and leather. These are exchanged with the mother country for manufactured goods.

Written Work.—1. On outline map of Argentina place the navigable rivers, railroads, important cities and ports. 2. Make a production map locating leading products and industries. 3. On outline trade map fill in our exports to and our imports from Argentina.

74. Uruguay and Paraguay.—(Review LIV.) *Uruguay* is a level, fertile plain with abundant navigable waterways. Grazing is the chief industry, though agriculture is increasing. Wheat, flax, and the vine are cultivated. The wool product exceeds a hundred million pounds, and is the largest export. Seven-eighths the total exports are animal products. What is their value (Table VI)? What is the value of the imports? We sell Uruguay oil, naval stores, cotton cloth, and many small wares.

A German company has an immense establishment at Fray Bentos for the manufacture of beef extract. "Jerked" beef is the largest meat export, but salted and refrigerated beef and mutton are increasing in amount. The flour and grain export is in value next to that of animal products.

There are no manufactures of importance, and Uruguay imports various foods, tobacco, textiles, clothing, and iron and steel goods. From the United States she imports farm tools, oil, cloth, and lumber, and sells to us the same products that we receive from Argentina. What is their value?

Paraguay is a rich farming and fruit-growing region. Describe its transportation facilities; its soil; climate; products. What are the exports? Tobacco, manioc, sugar, and oranges are leading products.

Maté is a product peculiar to Paraguay. The shrub from which the leaves are obtained resembles a small orange tree. The leaves are roasted and pounded into powder. This is sewed up in hides and exported to the neighboring countries to the annual value of about a million dollars.

Our exports to Paraguay consist of hardware, kerosene, and canvas; our imports are hides and vegetable extracts. There is no line of railway completed to Montevideo or Buenos Aires but goods are sent part way by water. The manufactures of Paraguay are leather, furniture, cigars, and earthenware. Spirits are distilled from the juice of the sugar cane. England furnishes half the imports. What is our share of them?

Written Work.—1. On an outline map show the rivers, railroads, and towns of Paraguay and Uruguay. 2. Write on trade map our exports to and our imports from these countries. 3. On outline map of the world shade the chief cattle-raising countries.

ASIA.

75. PHYSICAL FEATURES.—(Review Map Studies and LXIV.) How does Asia compare in size and population with the other continents? The interior is so elevated and so far from the sea that it receives too little rain to grow crops. A large part of it is a desert and the rest thinly settled. Describe the northern part of the continent. The bulk of the people live on the eastern and southern coasts, which receive abundant moisture from the monsoons (XII, 5). These coasts are deeply indented by numerous seas which afford inland waterways for ships and have led to an extensive coasting trade. Chinese junks throng these seas and ascend far up the rivers. The valleys along these rivers are the most fertile parts of Asia and furnish nearly all the vegetable products that the people of Asia have to sell. Locate eight of the river valleys of Asia and name some of the products of each. (Physical Map.) The plateaus and desert regions of the interior form about a third of the continent.

These are not only unproductive, but they separate the productive regions and act as barriers to commerce. Name three of the deserts; four of the plateaus.

The land of Central and Northern Asia slopes gently toward the Arctic Ocean. But as this ocean and the rivers emptying into it are blocked with ice during the greater part of the year, there is no outlet for trade in this direction. Much of the dry interior is basin-shaped. How does this affect the drainage? What do you know of the salt lakes of this region (LXIV, 3)?

The chief mineral regions are among the Caucasus, Ural, Altai, and Peling mountains. Locate each of these ranges and name the minerals found in each.

Where are the "Steppes" of Asia? What do they produce (LXIV)? What are the Monsoons (LXV)? What are the disadvantages of a wet and a dry season? How does the direction of mountains affect the climate of Central and Southern Asia? The vast chains of continental islands bordering Asia are a part of that continent and of equal importance with the mainland. Name some of these islands. They are very productive and are more progressive than many of the countries of the mainland.

Written Work.—On outline map of Asia draw the rivers and mountain ranges and write the leading productions of each country.

76. People, Industries, Commerce.—(Review LXV.) Asia is the home of oldest civilized nations of the world. They have, however, for many centuries been unprogressive. This has been due in part to the physical barriers which separate them from each other and from other continents, and in part to their observance of ancient customs and religions. What races are found in Asia? What religions prevail? Which three nations leads in civilization in Asia? Industries are not highly advanced among the people of Asia. Nine-tenths of them are farmers. Methods of cultivation and farming utensils are rude and clumsy, except in some of the European colonies where modern methods have been introduced.

China, India, and Western Asia have since the earliest times been famous for the manufacture of silk and woollen goods, carpets, rugs, and a great variety of metal work. But their methods of hand-manufacture have been so far surpassed by modern machinery that the nations of Asia instead of selling textiles to Europe are now buying them from that continent and from America.

In spite of their methods of production and difficulties of transportation Asia has always had an extensive inland and foreign commerce. What do you know of this commerce (LXVI, 4; LXIX, 3; LX, 1; LXXI, 5)? What about methods of transportation? How has transportation been improved in recent times (p. 108)? What railroads now connect Asia with Europe? Trace the route from Hankau to St. Petersburg; from Central Asia to St. Petersburg. Which country of Asia has the most railroads (p. 67)? Why does the foreign trade of countries having railroads exceed that of countries having none?

Written Work.—1. Make a list of the countries of Asia, of the races inhabiting each, of the religions of each and the leading occupations in each.

77. The Chinese Empire.—(Review LXVI.) Of what does the Empire consist? Compare it with the United States in area and population. What is the character of the Chinese? How do they rank in education? Describe the surface, minerals, occupations, and productions. What are the two great staple products and exports? Compare China with the other countries in the extent of its coal fields; in the production of coal (Fig. 11). China has many roads traversing the Empire in every direction, but they are in such bad condition that wheelbarrows, carts, and mules are the only means of transportation that can

be used. About 3,000 miles of railway are now in operation, and telegraph lines extend from Peking into every part of the Empire. A large trade is carried on between China proper and the provinces of Tibet, Mongolia, and Sin-Kiang; tea, rice, beans, and manufactured goods are exchanged for metals, animals, silk, wool, and cotton. What do you know of the caravan trade?

What are the leading manufactures of China? For what inventions are they famous? Owing to foreign competition the Chinese have been forced to make use of modern machinery. Cotton mills are now in operation at Canton and Shanghai; machines for reeling silk (silk filatures) are used in many places, and ovens for curing tea are taking the place of hand labor. Near Hankau is a rolling mill which turns out 300 steel rails per day. Flour and rice mills are taking the place of the old hand machinery for grinding.

What do you know of the foreign trade of China? Forty-three ports now admit foreign ships. Commercial nations have been eager to trade with China because her large population furnishes a market for low-priced goods, and the development of her natural resources will supply the people with money to buy them. Silk and tea are the chief exports from China, but she also sells raw cotton, wool, beans, hides and skins, opium, straw matting, and paper. Each of these products comes to this country. Her largest purchases from us are cotton cloths, kerosene, tobacco, and lumber. Great Britain has the largest share of the Chinese trade. What part of China's exports do we buy? What part of her imports do we sell to her (Table VI)? Russia buys about one-half the tea exported. By what routes does it go (LXVI)? Fully one-half the total exports and imports of the Empire are handled by British merchants through the port of Hong-Kong. This is the British crown colony at the mouth of the Canton River. It includes a small island and part of the mainland. Hong-Kong is the most important port in the East and one of the greatest in the world. It is a naval and coaling station and a free port, no duties being collected on goods passing through it.

Written Work.—1. On outline map of Asia write the leading productions of the Chinese Empire and locate the chief cities. 2. On a similar map write our exports to and our imports from China.

78. Silk and Tea were first cultivated in China. The art of weaving silk is said to have been known there 4,500 years ago. Since the worm which spins the fiber feeds only upon the leaves of the mulberry tree, silk culture is confined to those places where the mulberry grows. The worms are hatched and fed under cover, as cold or wet weather causes them to spin a poor quality of fiber. They attain their full size in about six weeks and at once begin to spin. The worm coils the fiber about its body until a complete covering, or cocoon, is formed. The cocoons are plunged into hot water to kill the pupa which would otherwise eat its way out and spoil the cocoon.

In reeling the fiber, the cocoons are placed in warm water to dissolve the gummy substance of the outer covering. The fibers of several cocoons are then united until a thread of sufficient strength is formed. This is wound into hanks or skeins and in this form is known as "raw silk." A single cocoon furnishes about a thousand yards of fiber. Silk culture requires much labor and skill. Hence silk is produced only in those countries where the population is dense and labor cheap. Those who engage in this work are carefully trained to it from childhood. What countries produce silk? What countries import and manufacture it? Where do we get our supply? Which of our cities manufacture it?

Tea consists of the dried leaves of the tea plant, a hardy shrub growing from ten to twenty feet in height. It is a native of Asia and has been under cultivation in China for 1,500

years. The quality of tea depends upon the age of the leaves when picked and the manner of curing. The old withered leaves and small twigs make the cheapest variety. The difference between "black" and "green" teas comes from the manner of curing. In this process the leaves are first dried slightly and then rolled and heated to cause fermentation. If now they are dried quickly in ovens the product is green tea; but if dried slowly or in the sun the leaves turn black. During the drying the leaves are rolled or twisted and curled, giving them the appearance that is so familiar. What countries produce tea (index)? What countries import tea most largely (index)?

Written Work.—1. On outline map of the world color the tea-growing regions. 2. On a similar map color the silk producing countries.

79. British India.—(Review LXIX.) What are the three natural divisions of India? How does it compare with the United States in size? In population? What do you know of the character of the people? Their manufactures? Their civilization? What are the chief agricultural products? Mineral products? Nine-tenths of the people are farmers. The Ganges valley is the most productive section, furnishing rice, jute, and opium for export. Cotton flourishes in the rich black soil of the Dekkan. Large crops of tea are produced in the uplands of the North. Wheat and millet are raised everywhere. Cotton, woolen, jute, and paper goods are the most important modern manufactures. The Indian cotton has too short a staple to rival the American upland in the world's markets and is made into cloth mainly at Bombay, for the home trade. Jute is made into coarse cloth (gunny cloth) and bags for wrapping bales of cotton and wool and for holding grain and seed. Calcutta is the center of the jute industries. Gunny cloth and bags are the largest export to the United States. How has internal commerce been improved in India (p. 67 and LXIX, 3)? The rainfall of India is very uncertain in large sections. Over 3,000 square miles of land are irrigated. Yet crops often fail and famines occur. What is the value of India's foreign trade (Table VI)? Why is our share of it so small—only one-sixteenth of the imports?

The food products of India proper are mostly consumed at home. Wheat, however, is a large export, rice and millet being the staple grain foods. The teas of India and Ceylon, owing to cheaper methods of production, have largely driven Chinese teas out of European markets. The rivalry of the blue dyes made from coal tar has made the production of indigo less profitable. The cottons of India have a large sale in China and other parts of Asia. Where is the opium sold (LXIX)? Describe the trade with the United States. Where is tin obtained? Spices? There is no trade in animal products, as the religion of the people forbids their use. Milk is used, and the hides are exported or made into leather, but the fat and flesh are pollution to the Brahman. Cotton cloth and kerosene are our chief exports to India. Great Britain, China and Germany have the most of the Indian trade.

Written Work.—1. On outline map of India draw the Indus and Ganges Rivers and write the chief productions of the country. 2. Locate the leading cities and tell for what each is noted. 3. On outline map of Asia write our exports to India and our imports from that country.

80. Japan.—(Review LXVII.) Of what does Japan consist? Describe the coast; the surface; the climate. Compare with Great Britain in size and population. What is the character of the people? What are the farm products? The minerals? What do you know of the productions and trade of Formosa? Of Korea? The Japanese are famous sailors. They have one of the best navies in the world. How do they rank in shipping

(Fig. 21)? Japan, like China, is a large exporter of silk, tea, rice, paper lacquer goods, and chinaware; but, unlike China, she is rapidly coming to manufacture the greater part of the goods needed for home use. Cannon, small arms, and steel ships are some of the larger products. But textile goods, boots and shoes, clothing, glass, hardware, scientific instruments, clocks, watches, medicines, and bicycles are only a few of the multitude of articles now produced by the "Yankees of the East." A thorough system of schools and colleges provides for education, and thousands of young men and women are sent abroad to learn the best there is in the institutions of foreign countries.

The commerce of Japan has increased fivefold in twenty years. What is the value of her exports? Of her imports? What is the share of the United States in each? Raw cotton from America is her largest import and raw silk sold to America is the largest export.

Japan manufactures the cotton into yarn and cheap grades of cloth for trade with China and Southern Asia, in return for which she buys rice, sugar, tobacco, and beans. Copper is largely exported to Great Britain and the United States. What is the rank of Japan in copper (Fig. 13)? Japan is poor in other minerals. She imports iron and steel goods from Germany, Great Britain, and the United States; locomotives, railroad supplies, machinery, and telegraphic and other electrical apparatus are the chief items. She also imports from this country kerosene, flour, paraffin, and tobacco. Besides silk, our imports from Japan are tea, matting, camphor, rice, copper, and chinaware.

Written Work.—1. On outline map of Asia locate the chief ports, cities and productions of Japan. 2. On a similar map write our imports from Japan and our exports to that country.

81. Indo-China.—(LXVIII.) What does Indo-China include? Which part belongs to England? To France? Which is independent? What is the population? What are the agricultural products? The forest products? Gamboge (physical map) is the hardened sap of a tree and makes a yellow dye. The civilization of the countries of Indo-China has not advanced beyond the agricultural stage. Farming, fishing, and lumbering are the leading occupations. Rice is the only export of importance. Burma, Siam, and Cochin-China are the largest rice exporting countries in the world. Their product is sold mainly to France, China, and Japan. The teakwood forests along the Menam River and the rubber groves along the Salween furnish the second largest export. Pepper, spices, sugar, cotton, and tobacco are also exported. The Malay States lead in the production of tin. This is shipped from Singapore, the chief tin market in the world, and next to Hongkong the most important seaport in Asia. Its exports are valued at \$300,000,000 annually and includes opiums, spices, woods, and gambier, a vegetable extract used in tanning. Rice is the largest import of Singapore and is carried to many parts of the world. Cotton, tobacco, fish, coral, and petroleum are also large imports. All these goods are re-exported. The United States imports tin, hides, spices, gambier, shellac, and indigo from Indo-China and exports to that part of the world kerosene, cottons, machinery, and tobacco.

Written Work.—1. On outline map of Indo-China locate the chief cities, rivers and products. 2. On a similar map write our exports to and our imports from that country.

82. Russian Asia.—The Russian possessions include nearly half the continent of Asia. (Review LXXI, 4-7.) Describe the northern third of Siberia (LXIV, 2). Fossil ivory is the only product. What two products are obtained in the central third?

Immense pine forests extend *nearly* across the continent. They are not yet used for lumber, but are visited only by hunters in search of fur-bearing animals. Southern Siberia contains the great grain and stock-raising regions. Large crops of wheat, rye, and oats are grown. What animals are raised? What minerals are mined in Siberia? Little attention is paid to any metal but gold. Two-thirds of Russia's gold output comes from Siberia. What is its value (Fig. 15)? Where is Trans-Caucasia? It produces all of Russia's petroleum. How does it rank in this product (Fig. 12)? The oil is pumped from deep wells near Baku. Nearly the whole population of that vicinity are engaged in preparing petroleum for market. What are the agricultural products of Trans-Caucasia? It supplies some cotton and much raw silk for the Moscow factories. The people are skilled manufacturers of carpets, silks, and metal goods. What is the situation of Russian Turkestan? It furnished about one and a half millions bales of cotton annually for Russia's great factories at Lodz, Warsaw, and Moscow. Its farm industries depend upon irrigation. What are its chief cities? For what is Bokhara noted? Khiva, Samarcand, Kokan, and Bokhara have long been famous centers for caravan trade with the rest of Asia and with Europe. Manufactures in Russian Asia are not yet of great extent, but they are increasing so rapidly that it is thought they will soon supply the needs of the country. Since the opening of the Trans-Siberian railway several millions of Russians have emigrated from Europe to Asia, and have become large consumers of Russia's manufactured goods, exchanging for them their grain, cattle, cotton, wool, and minerals. So high a duty is placed on foreign goods that the people are obliged to buy most things of Russia. What goods do we sell to Russia? What do we buy of her (Tables III and IV)?

Domestic trade has been greatly helped by improved transportations. Cotton was formerly carried from Ferghana to Orenburg by caravan, but now a railroad has been completed along that route. Trace the route from Bokhara to Batum; from Dalny to St. Petersburg. Internal trade is helped greatly by navigation on the Black and Caspian Seas and on the Volga River. The Ob and the Irtysh are navigable nearly to their sources, and are connected by canal with the Yenisei. This secures water communication with Lake Baikal. Caravans from China connect with this route at Maimatchin and Kiahta. What do they carry (LXVI, 4)? Tomsk and Irkutsk are the most important manufacturing cities in Siberia. Flour, leather, and articles of wood are made. Vladivostok is the chief port on the Pacific and has much trade with Europe, Japan, Korea, and the United States. We import squirrel skins and other furs and sell farm tools, flour, building materials, and steel goods.

Written Work.—1. On outline map of Asia write the leading productions of Russian Asia; draw the railroads and name the important towns along the routes. 2. On trade map write our exports to Siberia and our imports from that country.

83. Persia and Afghanistan.—Persia lies in the western part of the high tableland of Central Asia. The surface consists of rugged mountains and salt deserts with many fertile valleys and plains. There is little rain, but where the mountain streams can be used for irrigation, fine crops of wheat, poppies, cotton, tobacco, and fruits (LXX, 3) are grown. How is the water obtained (LXX, 2)? What do you know of the climate? The dates of Persia are noted for excellence, and the rose gardens of Shiraz furnish the most valuable of perfumes (LIX, 6). What minerals are found? Nearly all the turquoise in the world is found near Nishapur. The mines of iron, lead, copper, and tin are little worked because there is no means of trans-

porting the ore to foreign markets and no machinery for smelting it at home. Gold, salt, and petroleum are produced in small quantities. For what manufactures are the Persians noted? Carpets and rugs are made by hand in nearly every part of Persia. Each village has its peculiar patterns and no two rugs are made alike. A large carpet may take several years of labor to complete it. There are valuable pearl fisheries belonging to Great Britain near the Bahrein Islands in the Persian Gulf. Thousands of men are employed, and the annual product is worth more than \$1,000,000. What are the exports of Persia (LXX, 3)? Fruits, raw cotton and wool, silk, opium, rice, and carpets are the most valuable. Russia buys the cotton, wool, rice, and fruits, and England nearly all the rest of the exports.

These two countries are rivals for the Persian trade. There are no railroads in Persia, but goods are carried by carts and caravans from Tiberan, Tabriz, and the interior trade centers to the Russian frontier on the north and to the ports on the Persian Gulf. What are the size and population of Persia? What is the value of its exports? Its imports? These consist mainly of cotton cloth, sugar, tea and hardware. Why has the United States no trade directly with Persia? How do we obtain Persian goods?

Afghanistan is a country of high mountains and deep valleys. (Review LXX.) Describe the people. The caravan routes. What famous passes does it contain? What countries do these connect? Afghanistan, like Persia, lies between Russian and British territory, and these countries are rivals for political and commercial control. What animals do the Afghans raise? Their agricultural products are fruits, grain, tobacco, and some drugs and spices. Trade is mainly with India. The Afghans sell their horses, cattle, hides, silk, tobacco, and spices and buy dyes, cottons, sugar, and tea.

Written Work.—On outline map locate the chief cities of Persia and Afghanistan and the leading productions of each country.

84. Asiatic Turkey and Arabia.—Of what does Asiatic Turkey consist (LXXI)? The peninsula lying between the Black and Mediterranean Seas long known as "Asia Minor" is now called "*Anatolia*." *Armenia* borders on Trans-Caucasia; *Syria* lies along the eastern shore of the Mediterranean. *Mesopotamia* is a name meaning "between the rivers," and is applied to the country lying between the Tigris and Euphrates rivers. In the mountainous region east of it and bordering on Persia is *Kurdistan*. The western part of *Arabia* is also a part of the Turkish Empire. What provinces does it contain? How is the rest of Arabia governed (LXX, 7)? All of these countries are located on an elevated tableland, and except along the coast there is too little rain for successful farming. Hence the main industry is stock-raising. In ancient times, this part of Asia, through careful irrigation, was cultivated like a garden and contained rich and powerful cities. Now, owing to wars and bad government, much of it is an unproductive desert.

What are the productions of Asiatic Turkey? The exports? What do you know of the sponge and coral fisheries? Smyrna and Beirut are the chief ports, but most of the trade goes through Constantinople, which is connected by railroad on the Asiatic side with the chief cities. Beirut, however, exports silk, tobacco and oranges to the countries of Europe. Rugs, carpets, raisins, figs, opium, and valonia (LIX, 3) come from Smyrna. Trebizond, on the Black Sea, is the terminus of caravans bringing fruits from Mesopotamia and Persia.

For what products is Arabia famous? It is the native land of the horse, the camel, and the goat. Aden is a British colony and a free port. Many goods are exchanged here. The United

States sends cotton cloth to Aden and buys goat and sheep skins, Mocha coffee, and ivory.

Written Work.—1. Make a list of the chief cities of Arabia and Asiatic Turkey and state an important fact about each. 2. On outline map of Asia locate these cities and write the leading productions of the above countries. 3. On the trade map of Asia already begun write our exports to these countries and our imports from them.

AFRICA.

85. Physical Features.—(Review Map Studies and LXXII.)

What is said of the surface of Africa as a whole? Of the coast plain? The coast line is so regular that there is only one first-class natural harbor, that of Lorenzo Marquez. Locate the deserts and describe the effect of each on climate. Where are the chief mountain ranges? How do they affect climate? The Atlas range arrests moisture from the Mediterranean Sea and makes the coast from Tunis to Morocco fertile. The low coast plain is moist, hot, and so unhealthy that much of it is uninhabitable for white people.

What is the cause of the Nile's overflow? What winds bring the rain to Abyssinia and the Lake regions? The Sahara or Great Desert extends from the Red Sea to the Atlantic Ocean. Describe its surface; inhabitants; oases.

This region lies in the path of the southeast trade winds, which have become heated by passing over the Arabian peninsula. They thus become drying winds, taking up moisture as they proceed. As there are no mountains in the Sahara high enough to cool these winds sufficiently to condense their moisture this entire region is left barren. The oases are due to the rainfall on the southern slopes of the Atlas Mountains which runs down into the desert and sinks below the surface. These underground waters reappear in lower places as springs, forming the fertile spots so necessary as halting places for travelers and caravans. The date-palm is made to flourish in the desert by planting it so deep that its roots can reach the underground waters.

The Sudan is a strip of rolling prairie land stretching nearly across the continent. Can you account for its rainfall? Describe its people and natural wealth. It is more elevated than the Sahara and is traversed by numerous ranges of low mountains.

Central Africa lies between 10° north and 10° south latitude. What do you know of its climate and vegetation? It has the most extensive forests in the world, covering an area one-third as large as the United States. Cotton, coffee, tropical fruit and grains, palm trees, and rubber vines are found everywhere. What of the animals, insects, and peoples?

South Africa lies partly in the temperate zone. Its climate is dry and healthy and more white people live here than in any other part of the continent. The surface is elevated, rising abruptly from the coast. It has rich mineral wealth, consisting of coal, iron, diamonds, and gold. The climate is suited to agriculture and stock-raising.

The Rivers of Africa with the exception of the Niger are marked by waterfalls and rapids where the central plateau joins the coast plain. One of these, Victoria Falls, is the grandest cataract in the world. How do these rapids and waterfalls affect the country's development? Why?

Written Work.—On outline map of Africa locate the mountains, rivers, deserts, and the chief products.

86. Industries and Trade.—Africa is of all the continents the least important as regards production and trade. This is due to the low state of civilization of the inhabitants, to their frequent wars and lack of settled government, and also to an

unfavorable climate and soil. The continent is now entirely divided up among the nations of Europe, only the barbarous kingdoms of Abyssinia and Morocco and the little Liberian Republic remaining independent. But only in Egypt, Algeria, and in South Africa has any real progress been made in reducing the natives to law and order, and in securing regular crops and avenues of trade. There is a fringe of European settlements along the eastern and western coasts where traders exchange cloth, knives, firearms, and rum for the oil and nuts of the palm, the gums, coffee, ivory, and other natural forms of wealth.

Experiments in farming are being made by the governments of Germany, France, and Great Britain to ascertain what crops may be most profitably grown, schools are maintained for the natives, roads are being built and capital is invested in various ways in attempts to develop profitable industries and trade. But so far these experiments have cost far more than has been realized from them. At present the chief wealth of Africa is derived from its mines, forests, and other sources of natural wealth. Gold and diamonds are the most important, but the vast mineral wealth of Africa has scarcely been touched. Coal, iron, and petroleum exist there in vast quantities. Why is there little use for them? The African forests cover a million of square miles and contain such valuable timber as teak, ebony, mahogany, redwood, and other hardwoods. Rubber trees and vines and the palm are found everywhere and are a great source of wealth. Trade is mainly carried by caravans of mules and camels and by trains of slaves. Railroads have been most largely built in Egypt and South Africa, although there are a few short lines along the coast at various points. The completion of the projected railroad from the Cape of Good Hope to Cairo will open up the most productive part of the continent to trade. The foreign trade of Africa is small as compared with its size, population, and rich natural resources.

Written Work.—1. On outline map of Africa draw the chief railroads and tell the advantages that will come from the "Cape to Cairo" road. 2. Write a paragraph describing the means of communication in Africa.

87. Foreign Control of Africa.—Twenty-five years ago Africa was known as "the Dark Continent." What did this mean? Now the entire region has been explored. What nations control it? Egypt and Northern Africa were among the earliest homes of man. What have you learned about these countries? What nations control these parts? For thousands of years they furnished grain for the people of Europe and Western Asia.

During the latter part of the 15th century Portuguese sailors began to make their way down the Western coast, until Diaz reached the Cape in 1486 and Da Gama rounded it, completing the voyage to India in 1497. Settlements were rapidly made along the coast, and trade in ivory, gold, and slaves began, for which the natives received cloth, knives, weapons, and, mainly, rum.

The Portuguese had found the Arabs in control of the African and Indian trade, and after many years of war drove them out. The Dutch afterwards expelled the Portuguese and later were themselves displaced by the English, who now hold the best part of the continent. France has entered Africa from the north and now owns the most of the Sahara and the Sudan and a large part of the Guinea coast. What provinces are held by Germany? Italy? Portugal? Which countries are independent? How is Egypt governed? What interests have the English there and how do they share in the government?

The great hindrances to the commercial development of Africa have been the lack of settled governments and roads and the existence of the slave trade. This last is forbidden by all European governments, but is extensively carried on by Arab traders.

In tropical Africa where there are no beasts of burden, goods must be

carried by men. The stronger Negro tribes raid the weaker ones, and carry off prisoners to sell to the traders, who use them to carry goods to the coast and then sell them again to other traders. Only the Turkish provinces allow slavery, but it is secretly practised in other places. The British and French have done most to improve the industrial condition of the people. Algeria, formerly a land of thieves, has a strong government and property is safe. About 2,000 miles of railroads have been built and excellent highways. The foreign trade amounts to nearly \$150,000,000. What France has done for Algeria, Great Britain has done for Egypt and South Africa. These three sections are the best developed parts of the continent. In all colonies of England, Germany, and France, successful attempts have been made to introduce suitable plants for cultivation. Coffee, cocoa, tobacco, cotton, sugar, tea, indigo, and rice are profitably raised in many places. In order that these industries may flourish, railroads or other means of transportation must be furnished to bring supplies to the farmer and to take away his goods. How does the coffee of Central Africa find its way to the seaboard (map)? What lines are found in Angola, Cape Colony, and German Southwest Africa? What is their purpose? Find six other lines and tell their use? The British have planned a railroad from Cape Town to Cairo. The north end now extends to Khartum and the south end has crossed the Zambezi by a fine bridge above Victoria Falls. How will this road help South and Central Africa? Elementary and industrial schools have been begun in most colonies to teach the natives. How will this be an advantage to the country owning the colony? Will it make government easier? Will it make the land more productive? So far the countries of Europe have spent far more on their colonies than they have received. May this become a profitable investment? Why?

Written Work.—Make a list of the colonies belonging to Great Britain, France, Germany, Portugal, Turkey, and Italy and tell two leading products of each.

88. Region of the Nile.—Egypt is made fertile by irrigation and by the overflow of the Nile (LXXIII). Describe the annual rise and fall of the river. The black mud spread over the land by its annual overflow has increased to scores of feet in thickness in the Delta and has changed the valley to a level plain; such a river valley is called a "flood plain." Great dams and storage reservoirs are built at different places to hold back the water for use during the dry season. The fertile land of Egypt is a little greater in area than the State of Vermont. Compare its population with that of Vermont. The climate of Egypt enables the farmer to grow two or three crops each year where the water supply is sufficient. Cotton, sugar, and rice are sown in March and harvested in October and November. These are the chief crops. In November, wheat, beans, and millet are planted and harvested in late spring. On the irrigated fields crops of vegetables are raised between the summer and winter crops. Tobacco is grown, but Turkish tobacco is imported for making the famous Egyptian cigarettes. This is the only manufacturing industry of importance and is almost entirely carried on at Cairo.

Sheep, goats, and camels are raised, but Egypt is a large importer of animal products. Rice is also imported, but wheat, corn and beans are sold to the countries of Europe. Cotton is the largest crop raised for export. How does it compare with that of the United States (Fig. 18)? Egyptian cotton is a long staple and the most of it is sold to Great Britain and the United States. The former country has half of Egypt's trade. With Germany and France she supplies Egypt with cloth, iron and steel, and various manufactures. Besides cotton, we buy from Egypt gum arabic and hides and sell to her flour, meat, lumber, iron and steel. What do you know of the caravan trade of Egypt (LXXIII, 4)? Where are the most railroads? The line to Khartum is to be extended to connect with the railroad from Cape Town. How far is this last road built? (See map.) How will its completion help trade in Egypt? What is the advantage of the line to Suakin. Describe the Suez Canal. Four thousand ships pass through this canal each year, more than half of which are British. What possessions of Great Britain

are reached by way of the Suez Canal? It has made Port Said the second seaport of Egypt. Which one ranks first?

The *Egyptian Sudan* is a great undeveloped region with a mixed population about one-fourth that of Egypt. It sells to Egypt rubber, gums, ivory, gold, ostrich feathers, hides and skins, and buys manufactured goods that are brought from the countries of Europe.

Written Work.—1. On outline map of Africa write the chief productions of Egypt. Locate the important railroads and cities. 2. On a similar map write our exports to Egypt and our imports from that country. 3. Write a paragraph on the Suez Canal.

89. The Barbary States.—(Review LXXIV.) What part of Africa do these states occupy? Which of them are fertile? How does the desert affect the climate of Tripoli and Barca? What is the source of their rainfall?

Tripoli and Bengazi are the termini of caravan routes from the Sudan. What products do they bring (LXXIV, 1)?

Algeria and Tunis are the most prosperous of the Barbary States. To what nation do they belong? How do they compare with France in area and population? Agriculture and herding are the chief occupations. There are large forests of cork-oak. Minerals of many kinds are found. Iron and zinc are the chief metals mined. The yield of phosphate rock is second only to that of the United States. What products does Algeria supply to Europe (LXXIV, 3)? Esparto grass grows in unlimited supply in the southern plateaus. It is sent to England and France for use in making paper, and with zinc ore and cork forms the most valuable export. Iron, hides, phosphate, flax, tobacco, grains, wine, and sheep are the other leading exports. Algeria and Tunis depend upon France for seven-eighths of their imports; these consist of cloth, coal, coffee, tea, and various manufactures. From other countries they import cattle, lumber, tobacco, and leather.

The United States has little share in their trade. Our whole trade with French Africa amounts to less than \$1,000,000. From Algeria we buy cork, fiber, and goat-skins and sell to her kerosene, tobacco, and farm tools. Market gardening is becoming the greatest industry of Algeria. Vegetables of every sort are raised. There are 3,000,000 of date palms on the Sahara oases and 10,000,000 olive trees on the mountain slopes, while the number of orange, lemon, and other tropical fruit trees is increasing. Transportation is well provided for by good wagon roads and railroads to the seaports connecting with swift steamships for the ports of Europe.

Morocco is a badly governed, barbarous country, and of little importance to commerce. Eggs are the chief export. What are the others (LXXIV, 2)? Its imports are cloth, coffee, sugar, tea, and firearms. Trade is chiefly with Great Britain. There are no means of communication except by messenger, and goods are carried by caravan.

Written Work.—1. On outline map of Africa write the chief products of the Barbary States. 2. Locate the leading towns and draw the chief caravan routes. 3. Write a paragraph on Algeria.

90. The Sahara, Sudan, and Central Africa.—What nation controls the *Sahara*? What do you know of its size, surface, people, and trade (LXXV, 1-6)? What is the chief occupation? How are the oases formed? How is salt obtained? Many of the oases yield an abundance of dates and grain. By removing the surface soil to a depth of ten feet the date palm is made to flourish, as its roots can reach the underground waters. Trace the routes of trade. What goods are exchanged? What is the

Sudan? What are its products? Describe the people (LXXV, 6-10). What are the occupations? Productions? Exports? Imports (LXXV, 4)? Gums and rubber are gathered in the forests. Rice, millet, and ground-nuts are cultivated. The ground-nut is really the pod of a plant which ripens underground. It yields a valuable oil and is an important export from the Sudan and West Africa.

Where is the *Congo State*? What can you say of its commerce? Of its productions and exports (LXXV, 10-12)? Describe the oil-palm. Coffee, cotton, manioc, cacao, and rice grow where introduced. The Congo State is now the chief source of ivory, the herds of elephants in other sections having been nearly destroyed. Describe the surface of Abyssinia (LXXIII, 10). The raising of cattle, sheep, and goats is the main industry. Coffee is the largest agricultural product; the plant grows wild, and Abyssinia is said to be its earliest home. Cotton, sugar, dates, and grapes flourish but are little cultivated. What minerals are found? Only gold is mined. Transportation is by means of animals. Harar is the chief trade center. A railroad connects this town with Jibuti. Coffee, gold, gums, and wax are exported. Cotton and woolen goods, cutlery, mirrors, and matches are the largest imports. American cottons to the value of \$1,000,000 are imported annually.

Written Work.—1. On outline map of Africa write the chief products of Central Africa, the Sahara, and the Sudan and locate the chief towns. 2. Write a paragraph describing the trade of these regions.

91. The Eastern Coast.—(Review LXXVIII.) Where is Portuguese East Africa? What are its products and exports? Rubber, gold, and other metals are now exported. This colony is controlled by three trading companies and trade is almost entirely with Portugal. The colony buys cotton cloth, metal goods, spirits, beer, and wine. What railroads has the colony? They connect with Pretoria, Bulawayo, and Salisbury. Where is German East Africa? It is a rich agricultural region. Cocoa-nuts, coffee, tobacco, rubber, cacao, sugar, tea, bananas, and corn are cultivated. Many cattle, sheep, and goats are raised by the natives. Various minerals are found, among which are coal, iron, copper, lead, agates, topaz, and tourmalin. Several short lines of railroad have been built. The exports are rubber, gutta percha, copra, ivory, and coffee; the imports are cotton cloth, rice, hardware, and iron. Trade is with the British Colony, Zanzibar, and with Germany.

The *Zanzibar Protectorate* consists of the islands of Zanzibar and Pemba and a strip of the mainland. Pemba produces nearly all the world's supply of cloves. Other exports are ivory and copra. For what is *Eritrea* noted? Considerable gold is found. What is obtained from *Somali* (LXXVIII, 6)? Cotton, rice, and fruits are imported.

Madagascar is the third largest island in the world. To what nation does it belong? It is very rich in metals, nearly all kinds being found. Gold is chiefly mined. Stock-raising and agriculture are the main occupations. About 3,000,000 cattle are kept. Rice, manioc, sugar, coffee, cotton, cacao, vanilla, and tobacco are grown. The mulberry has been introduced. Valuable forest products used in tanning, dyeing, and medicine are found. Silk and cotton are manufactured. Rubber is the leading export. Rafia, a fiber derived from a species of palm, is obtained there. Wax and ebony are also exported. Cotton cloth is the chief import. Rice, wine, metal goods, and flour are next in value among the imports. What do you know of Mauritius and Reunion Islands? How does Mauritius rank in sugar (Fig. 26)? The United States sells flour, cotton, tobacco, meats, iron and steel to the

colonies of the eastern coast but buys little of them except hides and skins, the raw products which they furnish going to the countries of Europe.

Written Work.—1. On outline map of Africa write the chief products of the countries named in this lesson and locate the chief towns. 2. Make a list of these countries with the exports and imports of each.

92. The Western Coast.—(Review LXXVI.) What are the resources of the western coast? What are the British possessions? The French? The German? The Portuguese? What islands lie off the coast?

All the western colonies export palm oil and nuts, ground-nuts, kola nuts (used in medicine), copal, rubber, coffee, and ivory, and import cotton cloth, cutlery, hardware, firearms, and liquors. What is obtained from the Portuguese Islands? In all of these colonies industries and transportation are undeveloped. Experimental farming is carried on and roads are being built. Schools are conducted for the natives, in many of which instruction is given in the trades and agriculture.

Written Work.—1. On outline map of Africa color the colonies of the western coast belonging to the several nations and write their chief products. 2. Locate the capital of each.

93. South Africa.—This region lies between latitude 15° and 35° south. This is about as far from the equator as the West Indies; yet South Africa, owing to its elevation of 400 feet above sea level, has a temperate climate. What part of it belongs to Germany? To Portugal? The climate of the western half is dry, as the rain brought by the trade winds is cut off by the mountains. What British colonies are found in South Africa? What are the productions of the Cape Colony? Of Basutoland? Of Natal? Of North and South Rhodesia? Of the Orange River Colony? Of the Transvaal? How is transportation provided for? What parts are reached by the railroads? What interior cities?

The export of gold exceeds that of all other products combined. How does South Africa rank in gold (Fig. 15). Diamonds are the second largest export. Ostrich feathers, the hair of the Angora goat (mohair), copper ore, hides, and wine are also important. About all these exports go to Great Britain. But considerable of the wool, mohair, diamonds, feathers, besides spices and oil from the eastern coast, come to the United States in British ships. We sell the South African colonies through the same channel breadstuffs, machinery, provisions, rum, lumber, tobacco, kerosene, cotton cloth, leather goods, and fish. Our exports are more than thirty times as great as our imports. There is little manufacturing in South Africa because of the small number of white people living there. We have no trade with the German colonies.

Written Work.—1. On outline map of Africa write the chief productions of the colonies of South Africa and locate the leading towns. Draw the chief railroads. 2. On a trade map write our imports from South Africa and our exports to that region.

AUSTRALASIA AND OCEANIA

94. Australia.—(Review LXXIX, 1–12.) Compare with the United States in location, size and population. What do you know of the rivers? The lakes? The coast line is very regular. The warm, dry climate is very favorable to the sheep industry, in which Australia outranks all other countries. The basin shape of the continent allows the rainfall of the bordering mountains to run in underground channels to the interior. By boring Artesian wells these veins are tapped and a supply of fresh water is obtained for the sheep and cattle. How does Australia rank in sheep (Fig. 36)? In wool (Fig. 37)? Farming is carried

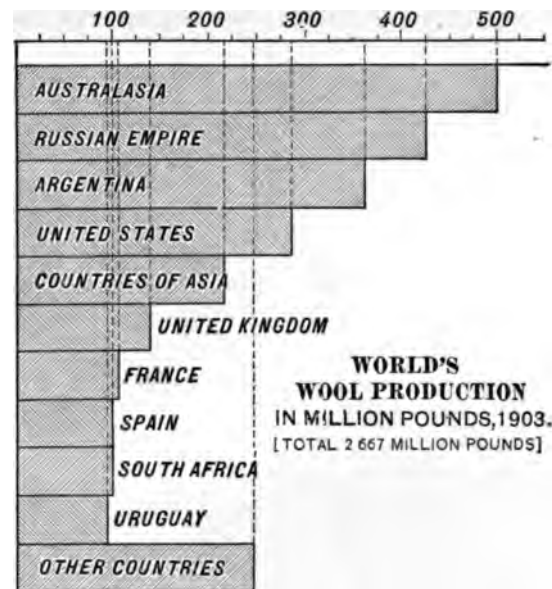


FIG. 37.

on wherever there is sufficient rain. Cotton, corn, sugar, wheat, and grapes are the leading agricultural products. Fresh grapes are sent to England on steamers having cold-storage rooms and reach that country in good condition. What minerals are found in Australia? How does it rank in gold (Fig. 15)? The average yield of gold is from \$85,000,000 to \$100,000,000, and over \$2,000,000,000 have been taken from the mines since 1851. Coal, copper, lead, silver, and tin are mined to the annual value of \$30,000,000. Butter-making and the preserving of beef and mutton by freezing and salting are the next largest industries. The manufactures of Australia are increasing, but do not supply the needs of the country either in quantity or quality. Farm machinery, wagons, leather, cloth, ships, flour, beer, and sugar are the chief articles. The gold, wool, copper, and other minerals, and much of the meat, butter, and fruit which Australia produces are exported; and this gives her a larger export trade in proportion to population than any other country in the world except New Zealand.

Judging from the number of railroads, which part of Australia is best developed? Nearly half the 15,000 miles of railways are in Victoria and New South Wales. Melbourne and Sydney are the chief ports and are connected by steamship lines with the great commercial countries.

Two-thirds of this trade is with Great Britain, which takes the wool, foods, and metals, and sells in return textiles, iron work, machinery, ships, chemicals, and various manufactures. Our import of Australian wool is very large, but most of it comes to us by way of Great Britain. Our other imports are hides, hemp, and rabbit-skins, which we use in making hats. We sell Australia more than twice as much as we buy of her. Our exports include a great variety of manufactured goods among which are flour, oil, steel, machinery, tobacco, lumber, paper, explosives, glass, soap, etc. What is the total export trade of Australia worth? The import trade? What is our share of it (Table VI)?

Written Work.—1. On outline map of Australia locate the chief products and cities. 2. On a similar map write our exports to Australia and our imports from that country.

95. New Zealand.—(Review LXXIX, 12.) What is the area of New Zealand? How many people are there to the square mile (Table VI)? Describe the soil; climate. What are the occupations? Exports? What peculiar products have the islands? New Zealand is one of the most prosperous of British

colonies. What is the value of her foreign trade and what is the trade balance in favor of New Zealand (Table VI)?

Sheep raising is the greatest industry, wool and frozen mutton forming over half the exports. Cattle are kept largely for dairying, the value of the butter and cheese export approaching \$10,000,000. Gold, silver, and coal are the chief minerals. Apples, grapes, and other fruits are extensively grown. New Zealand has 20,000 square miles of forests. One of the famous trees is the kauri pine which yields the kauri (cowrie) gum of commerce. By far the larger part of the gum is found buried in the ground in masses often weighing 100 pounds (LXXIX, 12). It is our chief import from New Zealand.

Manufactures are increasing rapidly in New Zealand and already supply most home needs.

They include iron and brass, building materials, furniture, cotton and woolen goods, boots and shoes, clothing and lumber. Textiles, clothing, steel, sugar, tea, tobacco, spirits, wine, and many small articles of manufacture are imported. Many of these go from the United States in British steamers by way of British ports. What is the value of New Zealand's exports? Imports? What is our share of each (Table VI)? What is the value of her exports per person?

Written Work.—1. Write a paragraph on the industries of New Zealand.

2. On outline map write the chief products and locate the leading cities and railroads.

3. On map of Oceania write our exports to and our imports from New Zealand.

96. The Dutch East Indies.—(Review Oceania, LXXX). Of what does Oceania consist? What nations control parts of Oceania? Of what does *Malaysia* consist? Melanesia? Polynesia? What races inhabit each of these sections? What are the productions of each of these groups? The Dutch Indies consist mainly of Java, Sumatra, Celebes, the Moluccas, parts of Borneo, and numerous small islands. How do they compare with Holland in size and population? Java and Madura are the most thickly settled and productive parts of the group. Rice, coffee, cotton, cocoa, corn, sugar, tobacco, cinchona bark, tea, and indigo are all raised in large quantities. In coffee Java ranks next to Brazil in the amount exported. Tobacco is the chief product and export of Sumatra. The Moluccas supply nearly all the nutmegs of commerce, besides pepper and other spices. What is obtained from Banka and Billiton? From Borneo? Among the products of Borneo are edible birds' nests, much prized by the Chinese for making delicacies, dammar, a resin used in making varnish, and beeswax obtained from the forests. Coal and petroleum are found in Java, Sumatra, and Borneo, but in small amounts.

There is regular steamship service with the countries of Europe and Asia. A large part of the land in the Dutch colonies is farmed under the direction of the government and the products are sold at auction in Amsterdam to Dutch merchants, who are the "middlemen" for the distribution of colonial products. So it happens that we buy Java coffee, Sumatra tobacco, and Banka tin in Holland. We also buy there the sugar, gums, and spices grown in the Dutch colonies. Our sales to Holland for export to the Colonies are mainly kerosene and machinery.

Written Work.—1. On outline map of Oceania color the Dutch possessions orange, naming each island or group and write their chief products. 2. On similar map locate the principal cities and write our exports to these islands and the goods which we buy of them.

97. Possessions of the United States.—Besides Australasia and the Dutch East Indies, there are over 600 island groups scattered over the vast Pacific Ocean. The most important of these are the Hawaiian and Philippine Islands, belonging to the United States. How did we obtain possession of each of these groups?

The Hawaiian Islands (XLIII a, 9-14) are, next to Cuba, our largest source of sugar. Describe the origin, climate, and products of these islands. The rich volcanic soil and mild climate make a great variety of products possible for Hawaii, although sugar receives the almost entire attention of farmers. Rice, coffee, tobacco, fruits, and vegetables are grown for home use. Our chief exports to Hawaii are breadstuffs, iron and steel goods, cottons, mineral oils, and provisions. What is the location of the islands with relation to Asia and the United States? What advantage is this to our country? We buy of Hawaii twice as much as we sell to her. Does this mean a loss to us?

The Philippines (XLIII a, 15-22) are the chief foreign possessions of the United States. What is their number? Area? Climate? Population? What is the chief cultivated plant? What are its uses? Does the United States raise fiber plants? For what do we use Manila hemp? What other products come from the Philippines?

These islands are undeveloped. They contain rich mineral wealth of gold, silver, copper, iron and coal. The forests contain valuable and useful timber, with a great variety of gums, rubber, gutta-percha, oils, and dyewoods. Sugar was formerly the most valuable product and may again become so. There are few manufactures in the Philippines and few staple foods are produced. Our exports are, therefore, largely cloths, foodstuffs, beer and liquors, petroleum, iron and steel goods, watches, bicycles, and a long list of small manufactured wares.

Samoa, Guam, and Wake Island are valuable only as coaling stations and as stations for our trans-Pacific cable.

Written Work.—1. On outline map of Oceania color the United States possessions blue, with the name of each and its chief products. 2. On the trade map write our exports to each island group and what we receive from it.

98. Foreign Possessions in Oceania.—Great Britain, France, and Germany control nearly all the 600 or more smaller groups of Pacific Islands. The eastern half of New Guinea, North Borneo with the provinces of Brunei and Sarawak, and the Fiji group are the most important British possessions. Only the last are well developed. The products comprise tropical fruits, valuable timber, gums, spices, and minerals. Coffee, tea, sugar, rice, tobacco, and corn are cultivated. Pearls, tortoise-shell, the down of the cotton tree, edible birds' nests, and sea-cucumbers, a kind of fish much prized for food in Eastern countries, are also found.

Of less importance are the Pitcairn, Gilbert, Phoenix, Lagoon and Solomon groups. Copra and other fruits, coffee, cocoa, arrowroot, and guano are some of the products. To all of these islands Great Britain sells meats, breadstuffs, cloth, hardware, kerosene and farming tools. Many of these goods come from the United States.

The chief French possessions are New Caledonia, New Hebrides, and Tahiti. The agricultural products are the same as those of the British groups. Copper, coal, and nickel are mined on New Caledonia and the rubber and mulberry trees have been introduced. Tahiti exports copra, vanilla, and mother-of-pearl.

Kaiser Wilhelm's Land in New Guinea, the Bismarck Archipelago, the Caroline, Marshall, and part of the Solomon and Samoan groups constitute the chief German possessions. These are very important to Germany as coaling and trading stations as well as for the value of their products. Nearly all are rich in the natural wealth of the tropics. The domestic animals have been introduced in New Guinea, and gold and valuable woods are exported.

Written Work.—Color the British possessions in Oceania red, the German yellow, and the French green, and write the leading production of each.

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GEOGRAPHY OF ARKANSAS.

A SUPPLEMENT TO MAURY'S NEW COMPLETE GEOGRAPHY.

By JOHN C. BRANNER, Ph.D., LL.D., PROFESSOR OF GEOLOGY IN LELAND STANFORD JUNIOR UNIVERSITY; STATE GEOLOGIST OF ARKANSAS, 1887-1893.

Location, Size, and Boundaries.—Arkansas lies entirely within the southern half of the Mississippi valley, or Cotton Belt, as this region is called. It belongs, therefore, to the group of Southern states. The northern half of the state corresponds in latitude with North Carolina and Tennessee; the southern half lies directly west of the northern parts of Alabama, Mississippi, South Carolina, and Georgia.



The State Seal.

In size Arkansas ranks fifth among the Southern states and twenty-first among the states of the Union. In shape the state approaches a square, the distance between its eastern and western extremities being 275 miles, and that between its northern and southern extremities 250 miles.

Arkansas is separated from Missouri on the north by the parallel of $36\frac{1}{2}$ degrees, a line famous in our history in connection with the **Missouri Compromise**, that is, the law admitting Missouri as a state. By this law it was agreed that, with the exception of Missouri, which had slaves, this line was to be the boundary between slave-holding and non-slave-holding states west of the Mississippi river. The Mississippi and St. Francis rivers nearly form the entire eastern boundary of the state. The Mississippi here has a general northeast and southwest direction—a direction corresponding nearly to that of a line dividing the state into highland and lowland regions.

The Surface Features of the state of Arkansas are remarkably varied. The broad and fertile river bottoms of the Mississippi form its eastern borders; its northwestern portion rises to the summit of the great Ozark plateau, while south of the Arkansas river and west of Little Rock the Ouachita uplift and other highlands form a wonderful series of parallel ridges, peaks, and mountain ranges.

Two General Surface Divisions.—The surface of the state is thus nearly evenly divided from the northeast to the southwest into two widely different regions. The line separating the low relief of the eastern portion of the state from

the high relief of its western portion enters the northern part of Arkansas near the boundary between Clay and Randolph counties. The line of division crosses the state a few miles west of the Iron Mountain railway and nearly parallel with it. Everywhere east and south of this line the surface is low, and for the most part gently rolling, the hills seldom reaching an elevation of more than three hundred feet above tide level.

West and north of this line of division the surface is much



Looking across the Mississippi at Helena.

more hilly and even mountainous; several of the highest points have an elevation of between 2,000 and 3,000 feet above tide level.

The Origin of Hills and Valleys.—In many parts of our country the nature of the surface is determined by the kind, arrangement, and positions of the rocks. Hard rocks resist decay and erosion, while the soft ones yield. The result is that the softer and more yielding rocks are broken down and washed away, leaving ravines and valleys, while the harder and more resisting ones are left standing out as hills, ridges, and peaks. The surface features of Arkansas are determined largely

by the rocks in which the relief is carved, and the character of the rocks is determined by the conditions under which they were laid down. In order to understand the forms of the land surface it is therefore necessary to know the conditions under which the rocks of the state were formed.

How the Rocks were Formed.—With the exception of the small area of volcanic rocks forming Fourche mountain just south of Little Rock, another at Magnet Cove in Hot Spring county, another small area south of Bryant, and



On the Ozark plateau, Buffalo river.

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a few other still smaller areas in the western part of the state, the rocks of Arkansas have all been laid down under water, and mostly under sea water. Some of the beds are composed of pebbles and coarse sand, others are made of fine sand, others of clays, and some of fragments of shells and skeletons of animals that lived in the seas at the time when these beds were deposited. After lying for a long while buried under great thicknesses of sediment, some of these beds became hard and compact, while others, such as the clays, became compact, but not very hard.

Pressure also folded and wrinkled many of the beds and even broke and displaced some of them. After being lifted out of the water, the rain, snow, frost, and heat attacked the rocks and caused them to fall to pieces. These fragments were washed down the slopes of the land into the larger streams, and finally into the ocean. But in this process of washing away, the softer rocks were carried away more rapidly than the harder ones, and to-day we have left, as the result of this long and varied history, the parallel ridges that form the Ouachita mountain system, and cover almost all of the Arkansas valley. West of Little Rock through Perry, Yell, and Scott counties, the long parallel ridges are of sandstone, while the valleys are mostly washed out of the soft shale beds.

Through western Pulaski, Garland, Hot Spring, Montgomery, and Polk counties is a series of sharp-crested, narrow,



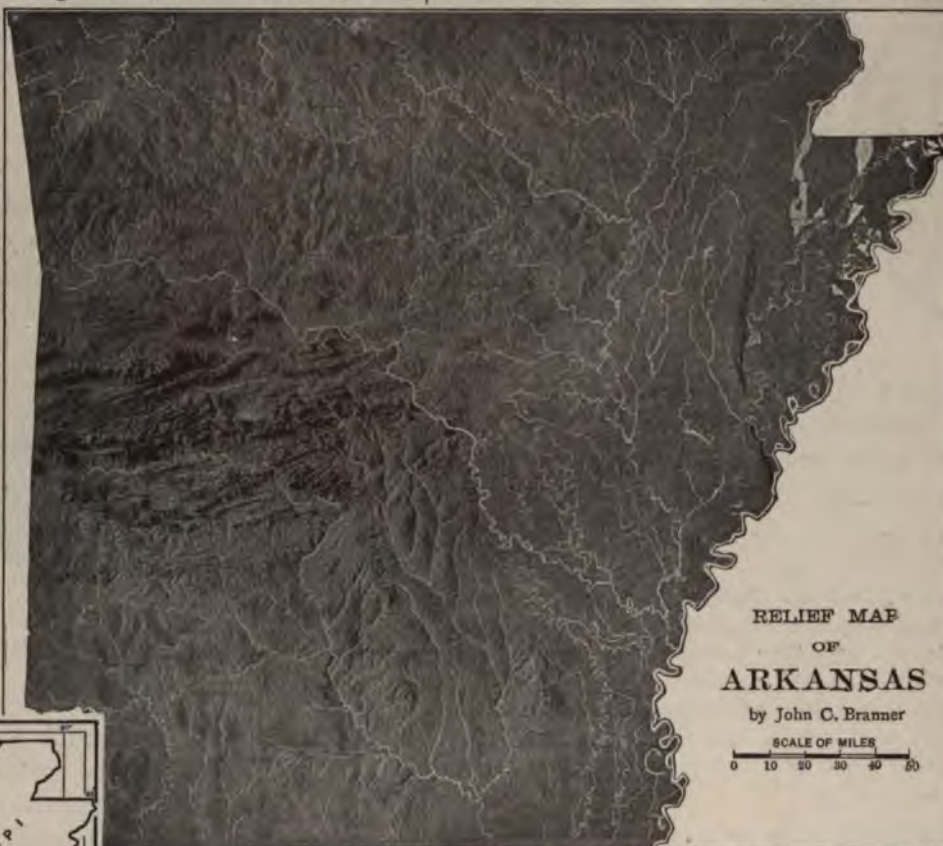
Key to Relief Map.

erosion, or denudation, leaving their upturned edges exposed.

The natural divisions of the state, though well defined, are not sharply separated, but merge one into another almost imperceptibly. These divisions are shown on the key to the relief map. By comparing the key with the geological map on page 3, the rocks of each section named below may be studied.

- | | |
|---------------------------------------|-----------------------------------|
| I. The Arkansas-Mississippi Lowlands. | IV. The Ouachita Mountain System. |
| II. The Ouachita Uplands. | V. The Arkansas Valley Region. |
| III. The Blacklands. | VI. The Ozark Plateau Region. |

Studies on the Relief Map.—Which is the region of highest elevation in Arkansas? Between what rivers does most of it lie? In what part of the state is the Ozark plateau? What river crosses it? What region on its southern border? How do the mountains of the Ozark plateau differ from those of the Ouachita region? Where are the Ouachita uplands? What natural region lies north of them? What river crosses the Blacklands? (See political map.) In what part of the state is the greatest number of rivers? What great river receives most of the drainage of the state? The loops and cut-offs along the Mississippi are old channels through which the river formerly flowed. Such channels are called **bayous** and **lagoons**. What river divides the state into nearly equal parts? What regions does it cross? What mineral products in the Arkansas valley region? What minerals are found in each of the upland regions? In the Blacklands? Trace the dividing line between the highlands and lowlands across the state beginning at the northeast. Where do you find the deepest valleys in the state? What ridge of land in the eastern part of the lowland region? Which regions form



the chief divides or water sheets? Trace the White river from its mouth across the state. What regions does it cross? What river crosses the southwestern part of the state? Find a leading city in each of the natural divisions. Name a railroad crossing each region. (See political map.) Name some of the productions of each natural region. Name the counties wholly or partly in each region.

I. The Arkansas-Mississippi Lowlands are the low flat lands on the west side of the Mississippi river along the entire eastern border of the state. They include all the low lands along the Arkansas river below Little Rock, the Bayou Bartholomew lands,

and the low valley of the St. Francis river. From the Mississippi river westward to the Black river and to the St. Louis, Iron Mountain and Southern railway, the region is not all alluvial land properly speaking, but it is nearly all low and flat. **Crowley's ridge** is an exceptional and remarkable feature of this portion of the state. This ridge has an elevation of only a little more than 100 feet above the country along its sides, and it varies in width from one mile to nine miles. Its southern end touches the Mississippi river at Helena, and, curving gently westward, it passes into Missouri, where the St. Francis river cuts it in the extreme northeastern corner of the state. This entire distance is unbroken save at Marianna, where it is cut in two by the L'Anguille river. From Crowley's ridge eastward the land is one vast alluvial plain left by the meanderings of the Mississippi and St. Francis rivers. It is protected from overflow by levees built along the Mississippi. The St. Francis river occupies the lowest part of this section, and receives its entire drainage by means of canals which are being dredged out. By this means the swamps of this region are being converted into the most valuable and fertile farming land of the state.



Chalk bluffs on Little river in the Blacklands.

er the low country west of Crowley's ridge. That ridge is therefore a remnant left by the Mississippi of soft sedimentary beds that once covered the entire eastern part of the state and extended eastward to the high lands of west Tennessee.

II. The Ouachita Uplands.—The region thus named is south of Little Rock and lies between Bayou Bartholomew and the Blacklands west of the Iron Mountain railway. The Ouachita river flows across the middle of this area. The country is one of low relief, the hills seldom having an elevation of more than 300 feet above tide level, and the soil of the uplands proper is sandy. Within this area are enormous quantities of pottery clays that were laid down when the sea covered this portion of the state.

III. The Blacklands.—The area of the Blacklands is not so large as that of the other natural divisions of the state. The soil of this region is highly productive, and owes its fertility to the chalky nature of the rock from which the soils are derived. The surface is low when compared with that of the regions north of it, and it contains no mountains or high hills. In this area, reaching from Arkadelphia to Rocky Comfort, are the extensive chalk beds from which Portland cement is made. The chalk beds are well exposed at White Cliffs on Little river. They are made of the minute skeletons of animals that accumulated at the bottom of the sea that once covered this portion of the state.

Chalk.—Everywhere at the bottom of deep seas where the climate is not too cold may be found the remains of minute shellfish and other creatures

West of the ridge the Mississippi river has had a remarkable history. That stream formerly had a southwest course from Cape Girardeau, and entered what is now the state of Arkansas in the western part of Clay county. It flowed southwest to Jacksonport, and from that place followed the course of the White river, and joined the Ohio river somewhere south of Helena. The old sand banks heaped up by this stream are still to be seen where the railway cuts them west of Newport and along the low sandy ridge near Tuckerman, Hoxie, Walnut ridge, and Knobel. The Mississippi helped to remove the soft sands and other loose sediments that formerly covered

that live in the sea. The shells of these animals are made chiefly of carbonate of lime which they have extracted from the sea water. These creatures are so small that they float in the water near the surface; but when they die their remains fall to the bottom. In the course of many centuries beds are formed many hundred feet in thickness.

When the seas extended to the base of the Ouachita mountains in southwestern Arkansas there were many portions of it where chalk beds were formed. As the ocean became shallower and the coast-line moved farther south, these deposits were frequently covered by the material brought by the streams; but in other places the ocean bottom was gradually lifted up and now forms the white chalky bluffs which we find scattered through the section of southwestern Arkansas west of the Ouachita river. The chief deposits are in the counties of Clarke, Hempstead, Howard, and Little river.

Uses of Chalk.—Besides lime, these chalk rocks contain quartz, clay, iron, and other substances. When such rock is finely ground and mixed

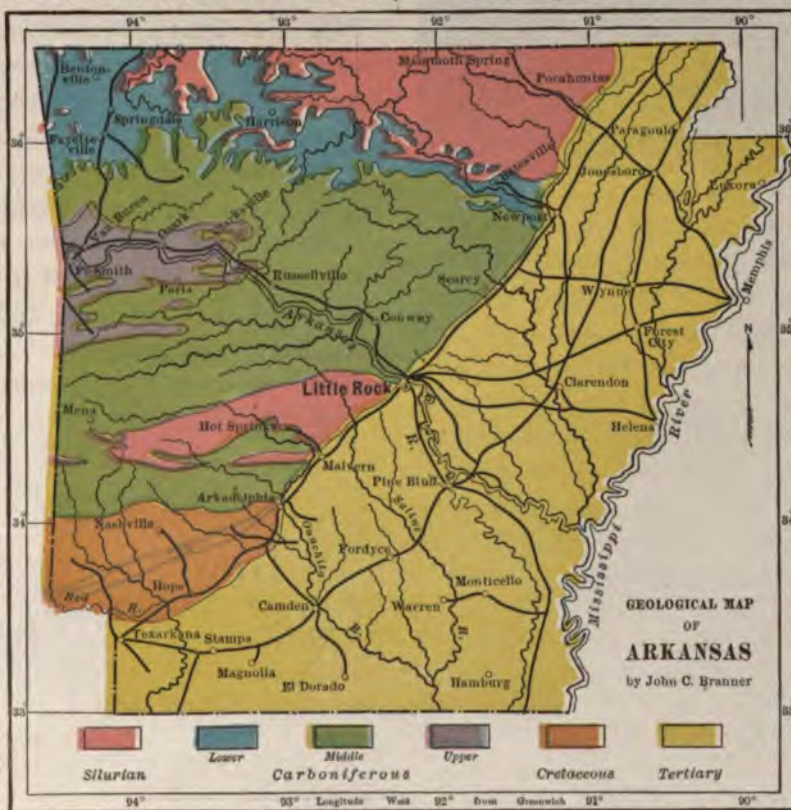


View on the St. Francis river.

with water, it hardens into rock. This ground rock is called natural hydraulic cement. In most cases, however, the natural rock lacks some of the elements necessary to make cement. These are usually clay and

Studies on the Geological Map.

By geology we mean the study of the rocks and soil. You will thus see that this study is directly related to the surface features and also to the agricultural and mining industries of the state. The accompanying map shows, by means of colors, the age of the different rocks of the state. In geology anything that goes to make up the crust of the earth is called **rock**. In the lower part of the map the names of the different rocks are given, the oldest ones being on the left; thus the **Silurian** rocks are the oldest in the state. These are very hard rocks. In what parts of the state are they found? Most of the zinc and lead mines and the whetstones are found in the Silurian rocks. Where are the carboniferous rocks found? (Carboniferous means *coal-bearing*.) These rocks are divided into three layers. What are their names? The **upper carboniferous** rocks contain most of the valuable coal mines of the state. Where are they found? The **middle carboniferous** contains much bituminous coal, vast quantities of fire clay, and some natural gas and petroleum. What cities are in this section? The **lower carboniferous** contains marble, and hard gravel, which makes an excellent dressing for roads. Where are the **cretaceous** rocks found? (Cretaceous means *made of chalk*.) Tell some of the uses of chalk. The newest rocks of Arkansas are called **Tertiary** rocks. Where are they found? This section contains excellent pottery clay, fire clay, and in some places lignite coal. The tertiary and cretaceous sections contain the most fertile farming lands of the state.



lime. The hydraulic cement manufactured in this way is called Portland cement. The chalk of southwestern Arkansas has been found to make a good quality of this cement and its manufacture is carried on to some extent at White Cliffs near Folmina.

Marl.—Where we find clay and chalk mixed, it forms beds of bluish sand called marl. This substance is abundant in the chalk regions and is used as a fertilizer.

At many places within the Blackland area, especially about Lockesburg, Center Point, and Nashville, the soil is gravelly. The gravelly beds, however, are not deep, and the chalk beds underlie them. In other places streams have cut wide channels across the chalk beds, and deposited alluvium over their flood-plains. This has happened where the blacklands are crossed by the Terre Noire, Little Missouri, Saline, Cossatot, Little river, and part of Red river.

IV. The Ouachita Mountain System.

—West of the city of Little Rock, south of the Poteau mountains, of Petit Jean river, and of Petit Jean mountains, and north of Arkadelphia and Murfreesboro, is a series of peaks and parallel ridges forming the Ouachita mountain system. In strong contrast to the Ozark



A grazing scene in the A. Kansas valley.

system these mountains, though most of them are of the same rocks as the Ozark plateau, are made up almost entirely of long, narrow, and sharp-crested ridges. Most of the ridges lie nearly east-west, but in the western part of Pulaski county they have a northwest-southeast trend, while about Hot Springs they have a northeast-southwest trend. The longest of the narrow east-west ridges in the group is the one running southeast of Danville, Yell county, to southeast of Waldron in Scott county. It has a total length of about fifty miles. Maumelle pinnacle, thirteen miles above Little Rock, is an isolated peak formed of the upturned edge of a thick bed of sandstone.

One of the highest peaks of the Ouachita system is in the Poteau mountains southwest of Manfield; it has an elevation of 2,560 feet. Another peak, called White Oak mountain and having an elevation of 2,260 feet, is on an eastward prolongation of the Poteau mountains; another one in the same range, at the southeast corner of Logan county, has an elevation of 2,575. In the Fourche mountain range, where Scott and Polk counties join, the highest peak has an elevation of 2,330 feet. The valuable



A perpendicular novaculite, or whetstone, cliff in the Ouachita mountains, Folk county.

whetstone and hone-stone rocks of Arkansas all come from certain parts of the Ouachita mountain region.

V. The Arkansas Valley Region.—The portion of the state spoken of as the Arkansas valley region includes the area between the Petit Jean river on the south and the Boston mountains on the north, and between Searcy and Little Rock on the east and Oklahoma on the west. The sandstone ridges are well defined through this portion of the state, and especially along the line of the Choctaw railway south of the river, and between Morrilton and Searcy on the north side of the river. There is a noteworthy group of these ridges near Conway in Faulkner county.

Another area remarkable for its parallel and curving ridges lies between Magazine mountain and the Oklahoma line south of Fort Smith.

Magazine mountain, with an elevation of 2,823 feet, is the highest peak in Arkansas. Mt. Nebo in Yell county (elevation 1,760 feet) and Spring mountain, a few miles west of it in Logan county, are likewise flat-topped, isolated peaks, having the same general structure and history as Magazine mountain.

The Petit Jean mountain, fifteen miles southeast of Dardanelle, also belongs in the Arkansas valley region. That mountain has an elevation of 1,112 feet. Though not nearly so high as many other mountains in the state, it is made prominent by its nearness to the Arkansas river and the surrounding bottom lands, and by its apparently flat top.

Most of the valuable coal beds of the state are in the Arkansas valley region. It also contains enormous quantities of fire clay, and of excellent brick clays.

VI. The Ozark Plateau.—North of the Arkansas river and west of the St. Louis, Iron Mountain and Southern railway, the rocks have not been much folded except in the triangular area lying between Little Rock, Morrilton, and Searcy. The relief of this northwestern corner of the state is high and rugged, but of a type entirely different from the mountain region south of the Arkansas river. The region is an elevated plateau, or set of plateaus, rather than a single mountain. The rocks lie in nearly horizontal beds, and these beds are cut through by deep, steep-sided gorges.

The White river flows through the lowest part of the Ozark



A cornfield in the Arkansas valley.

plateau and drains it. The general surface is rolling or hilly, while a few isolated peaks rise above the general level of the region. The country about Mountain Home, for example, is for the most part a great plateau scored on the edges by the gorges of streams flowing into White river and its large tributaries. The



Scenes along the White river. This river and its branches have cut deep gorges through the Ozark plateau. Usually the rocks are close to the river on one side, while on the other side an alluvial flat has been formed, as shown in the second and third views.

hills that rise above this plateau were once capped by the rocks that form the north face of the Boston mountains, but these caps were worn away long ago. Of such origin are Sugar Loaf mountain, two miles north of Lead Hill, many of its isolated peaks along White river, those north of Flippin and along the lower part of Crooked creek, the isolated peaks north of Mountain Home, Perry's Knob, Naked Joe, Turkey Knob, Twin Knobs, and Devil's Knob, all of them on the lower White river, but above Batesville.

South of the White river valley the Boston mountains form the watershed between White river and the Arkansas river drainage. These mountains have several names at different places between their eastern end, southeast of Batesville, and their western end, where they pass into Oklahoma at Evansville in Washington county.

From a point between Green Forest and Berryville in Carroll county, the topography of the Boston mountains to the east is in strong contrast with that toward the west. In the latter region the high mountains merge by short steps and with many outlying peaks into the plains to the north, while toward the east the flat-topped mountains rise with abrupt escarpments from the lower plain on the north. In some places the north face of the range is nearly straight for many miles, in others it is cut into by the streams so that long finger-like ridges project toward the north, or they are worn away leaving lofty, isolated outliers standing upon the lower plain. Through that part of the mountains locally known as the Blue mountains and lying between a point 12 miles east of Marshall and the town of Batesville, the north-facing escarpment of the Boston mountains is almost unbroken by ravines. West of this straight part of the range, narrow canyons cut into the high mountain plateau. This dissection of the north base of the range is especially marked on Buffalo Fork and Richland creeks. These mountain gorges are from fif-

teen to twenty-five miles long, and in some cases they are from 1,200 to 1,500 feet deep.

Point Peter in Searcy county, 1,030 feet above Richland creek, is the northern end of a fine example of one of the high north-pointing spurs of the Boston mountains. Many of these old spurs of the Boston mountains have been completely washed away, while others have been only partly removed, and are left as outliers or isolated peaks standing on the lower plain all along the north face of the mountains. Some of these outliers or remnants of former spurs are Cow mountain, Panther mountain, and Roper mountain west of Mountain View; there is also a cluster seven miles south of Bellefonte whose peaks are known as Pilot, Boat, Pinnacle, Sulphur, and Fodder Stack mountains.

Where the St. Louis and San Francisco railway crosses the Ozark plateau near the Missouri-Arkansas line, there is a group of small outliers of the Boston mountains that rise above the general level of the surrounding country. This group includes Pea Ridge, the historic site of a battle of the civil war; Blansett,



Gentry, Radcliff, Pond, Rich, Poor, Glasscock, Little Sugar mountain, and the Devil's Eyebrow. These peaks are all in the vicinity of Garfield station. Fayetteville stands at the west base of another outlier—East mountain (elevation 1,734 feet)—while in the vicinity are Pierce, Kessler, Washington, Baxter, and several other peaks having a like history. Similar but less prominent peaks are scat-



tered along the north face of the Boston mountain from Fayetteville to Evansville. One of these, Cane hill, has an elevation of 1,600 feet above tide level.

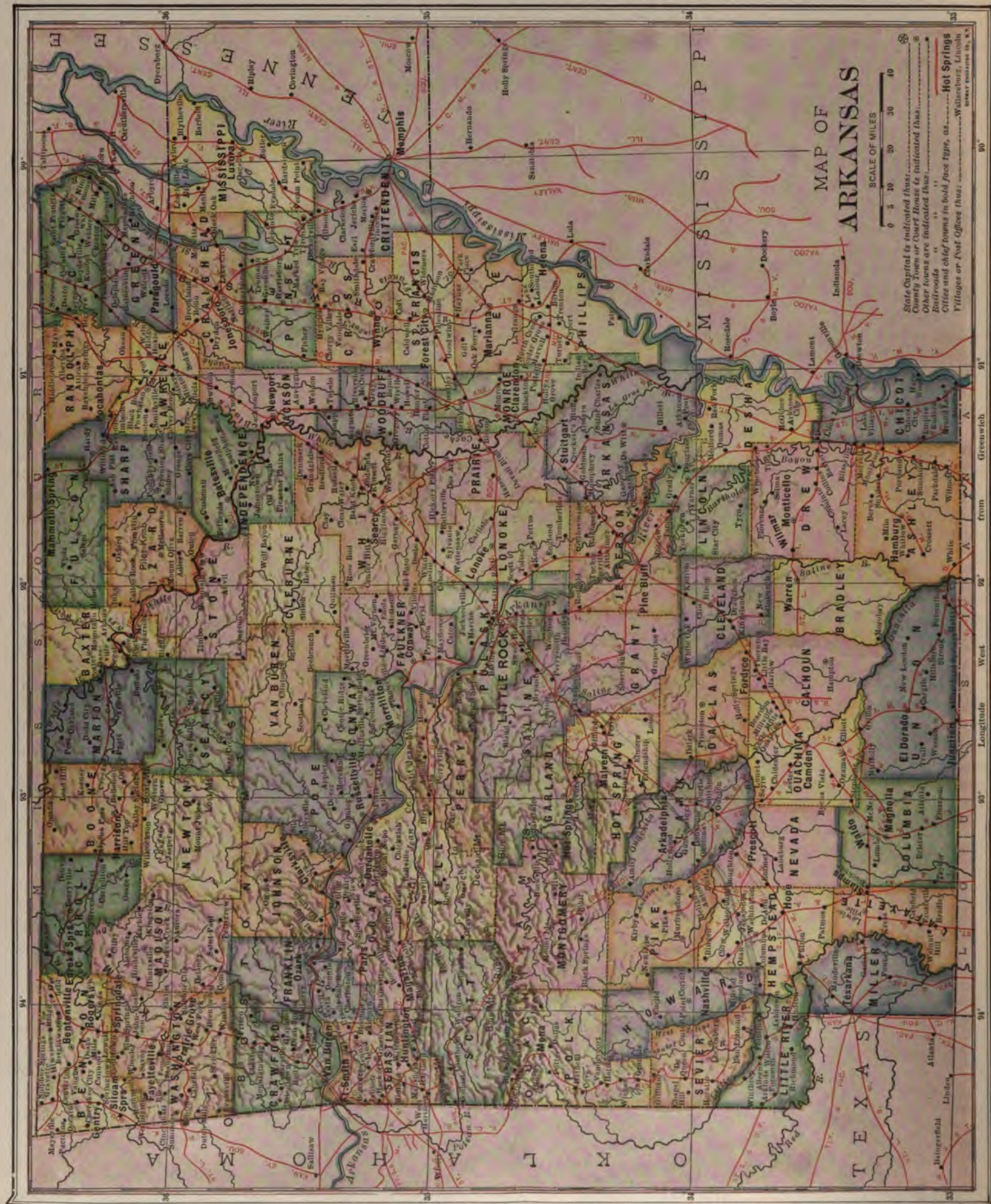
The south face of the Boston mountains in some places slopes gradually southward and merges into the Arkansas valley region of folded rocks. North of Clarksville, however, the mountain region ends abruptly in the south side, where the mountain rises like a gigantic wall that overlooks the Arkansas valley.

The Ozark plateau contains enormous quantities of **marble**, **limestone**, and **glass-sand**. There are also **lead** and **zinc** mines, and valuable deposits of **phosphate** rocks at many places.

The Streams.—The principal streams of the state are the



On the Ozark plateau. View near Fayetteville, Washington county.



Mississippi, Arkansas, White, St. Francis, Ouachita, Red river, and Bayou Bartholomew. These are all navigable, though the smaller ones are navigable only during seasons of high water. Other streams worthy of mention, but not so large, are Little Red river, Cache, Petit Jean, Fourche la Pave, and Mulberry river.

The Mississippi, the Arkansas, Red river, Petit Jean, Fourche la Pave, and Bayou Bartholomew are sluggish, muddy streams, but most of the smaller streams, especially those of the northwestern part of the state, have unusually clear water.



A characteristic gorge in the Ozark region.

The Drainage of the Ozark Plateau.—Beautiful springs of clear, cold water are abundant all through the region of the Boston mountains. White river and its tributaries drain nearly all of the Ozark plateau that lies in the state of Arkansas. Most of the tributaries head in the Boston mountains and flow northward to the main stream; those that head near the watershed of the Boston mountains flow through deep gorges in their upper portions and emerge on the great lower plateau at the north base of the mountain. Over this lower plateau the streams have winding courses, and they wash the bases of vertical cliffs of hard rocks first on one side and then on the other. Most of the valleys along these streams are so narrow that they have but little bottom land. Water-worn boulders are strewn down the slopes of the hills along these streams, showing that the streams have gradually cut their way down to their present levels.

Shifting Streams.—The Mississippi and the Arkansas rivers below Little Rock are constantly undercutting their banks and shifting their channels. The great curves of the streams where they bend back upon themselves are called ox-bows on account of their forms. These ox-bows occasionally cut through the narrow necks that separate the two parts of the stream. The

stream takes the shorter course, and the old crooked bed of the stream is then abandoned. The muddy waters have their currents checked where they pass the quiet waters of the abandoned channels, and this causes them to be dammed up with mud, and eventually to be separated from the main channel, and left as crescent-shaped lakes in the river bottoms. This process causes the removal of the area enclosed in an ox-bow from one side of a river to the other. Certain parts of the state of Arkansas that were once west of the Mississippi river, have been transferred to the east side by the cutting off of these ox-bows.

The records of old and new land surveys made along the Arkansas river between Little Rock and the mouth of the river show that that stream shifted its channel as much as three and a half miles near Arkansas Post between 1829 and 1885, and two and a half miles near Pine Bluff between the years 1825 and 1885. About ten miles below Little Rock the channel shifted at one place four miles in the period between the years 1826 and 1885. The crescent-shaped lakes along the Mississippi, the Arkansas, the St. Francis, the Red river, and Bayou Bartholomew originated in this way. Between Little Rock and Fort Smith the Arkansas river cannot change so much, because in that part of its course it flows through a region of hard rocks that cannot be undercut so readily as the alluvial lands of its lower course.

Work of the Streams.—The muddy appearance of river waters is due to their carrying mineral matter or finely powdered rocks. All streams carry much mineral matter in solution also, though this dissolved matter is not visible. In one year the Arkansas river carried past Little Rock 6,828,350 tons of mineral matter or rock in solution, and 21,471,578 tons of mineral in suspension, a total of 28,299,929 tons of rock.



Music Springs.

Hot Springs.—The hot springs of Arkansas are perhaps the most striking natural phenomenon in the state. The high temperature of these springs (146 degrees) is due to the waters coming in contact with hot rocks far beneath the surface of the earth.

MAP STUDIES.

Home Geography.—What states are in the same latitude as Arkansas? In which direction is each from your state? Between what meridians of longitude does your state lie? Between what parallels of latitude? Turn to the map of Asia and find what countries lie in the same latitude as Arkansas. Compare the latitude of Europe with that of your home. Find countries in South America that are in the same zone as Arkansas. Find such countries in Africa. Find the average length and the average width of the state, using the scale of miles. Find the county in which you live. What is its latitude? Its longitude? Its average length and breadth? Its area? In what township do you live? How many townships in your county? What is their size? Find your county seat. What is the number of your school district? What are the principal industries in your county? What railroads or rivers pass through it? Name the manufactures. What state lies north of Arkansas? What state west? What can you tell about Oklahoma? What states south of Arkansas? Find the distance from your town to each of these states. How does your town compare in size with each of them?

Surface.—In which natural division of the state do you live? Give some account of each of the other divisions. What mountains are nearest to you? How high are they? Find the location of the three highest mountains in the

state. Name some counties lying in each of the natural divisions of Arkansas. What counties border on your county? What river borders the state on the east? On the southwest? What two rivers cross the state? What are the largest rivers lying entirely within the state?

Cities and Towns.—What is the capital of Arkansas? What are the chief cities in the Arkansas valley? In the Ozark plateau? In the Mississippi lowlands? In the Ouachita uplands? In the Blacklands? Tell something about each of the following cities: Jonesboro, Helena, Pine Bluff, Fort Smith, Texarkana, Hot Springs, Arkadelphia, Eureka Springs, and Camden.

Railroads.—How would you go by railroad from your town to Little Rock? On what road could you go from Little Rock to Texarkana? To Camden? To Fort Smith? What railroad crosses the western part of the state? Through what cities does it pass? What are the chief cities on the St. Louis, Iron Mountain and Southern road? On the Cotton Belt road? The Choctaw? How could you go from Memphis to Little Rock? What road follows the White river valley? What road crosses the Ozark plateau? Through what cities does the St. Louis and Iron Mountain and Southern road pass? What railroads enter Little Rock? Find five leading railroad centers in the state and tell what roads pass through them.

Trace the route of each of the following railroads and name the chief towns through which they pass: Kansas City Southern, St. Louis, Iron Mountain and Southern, Louisiana and Arkansas, St. Louis and San Francisco.

The Natural Resources of Arkansas are rich and varied. A mild and moist climate and a great variety of fertile soil enable her to produce a wide range of fruits and farm products. Her vast forests, which once covered the entire state, and an abundance of coal,



Harvesting alfalfa in the St. Francis valley.

iron, and other minerals, are the basis of growing manufacturing interests; her chief rivers are navigable and connect all sections of the state with the Mississippi river

system and the Gulf of Mexico. **Climate.**—Arkansas lies in the warm-temperate belt. The climate generally is mild and equable, with abundant rainfall. The central and northern parts of the state, however, have an elevation of about one thousand feet above the lowland

section. This fact, together with the higher latitude of these parts, gives them a cooler climate. In the lowlands the summers are hot, but in the highlands they are uniformly pleasant. The winters throughout the state are mild, the thermometer seldom going far below freezing point. The annual rainfall is over 40 inches, and well distributed throughout the year, insuring abundant crops.

Soil is formed by decay of rocks and of vegetable matter. When it lies where it is formed, it is called *residual* soil; but when it is transported to a distance by moving waters and spread out over the lower parts of the country, it is known as *alluvial*, or *transported*, soil.

The fertility of soil depends upon the nature of the rock from which it is formed. Chalk and limestone rock, such as is found in the cretaceous section of Arkansas, form a very rich soil, well adapted to corn. Shale and sandstone rock make a soil less fertile, but very suitable for fruits, vegetables, and certain field crops, like rye and oats. The soil of the highland regions of Arkansas is largely residual; but, in the lower areas of the southeast, and in the valleys of the Arkansas, White, and other rivers, we find alluvial soil of great depth and of inexhaustible fertility. These sections produce large crops of cotton, corn, potatoes, sugar-cane, and rice. The upland regions, especially the northwestern parts, are the great fruit-producing regions of the state.

Agriculture is the leading occupation in Arkansas. Its products are in value greater than all other products of the state combined. **Cotton** is first in importance, its value being about equal to the combined value of all other crops. Arkansas ranks seventh among the states in its cotton products. The average annual crop is about 800,000 bales and 400,000 tons of

seed. It is worth together about fifty millions of dollars. The best cotton land lies in the lower valleys of the Arkansas and White rivers, and along the Mississippi. Jefferson is the leading cotton-producing county, followed by Phillips and Lee. The best bottom lands in Jefferson county yield about a bale and a half of fiber to the acre.

Corn is not so profitable a crop to the farmer as cotton, and hence less attention is given to it. The annual crop is nearly fifty millions of bushels, its value being a little less than half the value of the cotton crop. The corn of Arkansas is not sold outside of the state, but is used for food and to fatten hogs and cattle. Over a million hogs and about half a million beef cattle are kept upon the farms of the state.

Wheat, oats, and rye grow well in the upland regions, where the soil is suitable. But the combined value of these three crops is only about one twentieth of the value of the cotton crop. **Rice** is successfully grown in Lonoke county. The water for flooding is obtained from wells. Plantations near Carlisle have yielded from sixty to a hundred bushels an acre. **Sugar-cane** has been raised in Ashley and in other counties in the south and east. The lowlands produce, also, enormous crops of alfalfa, Bermuda grass, clover, and other forage grasses.

It is, however, in the production of **fruits and vegetables** that Arkansas ranks preëminent among the states. Apples, pears, peaches, plums, and cherries are produced on the largest scale. The plateaus of the northwestern part of the state are peculiarly fitted for the successful cultivation of apples, which are also raised in the lowland counties. The finest apples of the world are produced in Washington, Benton, and Madison counties. These counties have more apple trees than any other three counties in the United States, and have sold apples to the value of \$3,000,000 in one year.



A field of oats near Stuttgart.



A cotton field and pickers near Batesville.

Arkansas has been called the world's orchard, and received the highest prize for its exhibition of fruits at the Columbian Exposition at Chicago in 1892. Hundreds of car-loads of apples, pears, peaches, and apricots are annually exported to foreign countries or sold in other parts of the United States. The uplands of the state are also well adapted to the **vine**. Small fruits are raised on a large scale in many parts of the state, and much attention is given to market gardening. The sandy eastern slopes of the Boston mountains and the narrow valleys in the same region are model lands for strawberry culture. Sweet potatoes and melons are raised in abundance in nearly every part of the state, and vast quantities of them find a market in other states, especially in the North.



Packing peaches for shipment in northwestern Arkansas.



A pine forest in Sevier county.

The Forests of Arkansas are to-day the most extensive in any state of the South. In the southern part of the state, pine, cypress, and cottonwood are the most abundant varieties; in the northern part, oaks, hickories, and other hard woods prevail. The hard-wood forests of Arkansas are the most extensive and valuable found in any state of the Union.

When the great forests of the northern and north central states began to fail, lumbering became a profitable industry in Arkansas, and immense saw and planing mills were soon built along all the leading rivers and lines of railway.

Minerals.—The mineral resources of Arkansas are varied and of considerable extent, but have not been developed on account of lack of fuel and of transportation facilities. The increasing output of coal, however, and the extension of branch lines of railway into the mineral regions, are rapidly overcoming these difficulties.

The workable coal deposits are mainly in the Arkansas valley region, and cover an area of about 1,700 square miles. The average annual output is over two million tons, valued

at \$3,000,000. Sebastian county yields over two thirds of the entire amount. The next counties in order of the amounts produced are Franklin, Johnson, Pope, Logan, Washington, and Scott.

Iron is found in nearly every county in the state, but in such small quantities as to be of little value. The deposits are also too distant from manufacturing centers to be profitable.

Manganese is a metal resembling iron and used in making steel. It is mined chiefly in Independence county, near Batesville; but it is found in small quantities in Pike, Garland, Hot Spring, and Saline counties.

Aluminium is valuable for lightness, strength, and durability. It is obtained principally from the mineral **bauxite**, which is found in large quantities in Pulaski and Saline counties. About half the aluminium used in the United States comes from Arkansas.



The Morning Star zinc mine.

The zinc and lead deposits of the Ozark plateau have long been famous. The counties on the northern border of Arkansas contain the richest zinc deposits in the United States. Railroads are being rapidly extended into this section, and preparations are being made for zinc mining on a large scale.

Besides the metals named above, many others occur in small quantities. **Antimony** is found in Howard county; **bismuth** in Sevier county; **copper** in Independence and Garland; nickel in Saline, and **silver** and **gold** in insignificant amounts in various parts of the state.

Novaculite, or whetstone rock, is a characteristic product of Arkansas. Hones and whetstones of the finest quality have been obtained from the earliest times from the quarries near Hot Springs, in Garland county. The rocks called *novaculites* are very hard sedimentary rocks. The grain is of varying degrees of fineness, fitting the stone for different purposes. The coarser kinds found in the Ouachita mountains are made into whetstones for sharpening scythes and other coarse instruments. But the finer qualities, known as *Arkansas* stone and found in Garland county, are used for sharpening fine instruments. In the

powdered form this stone is much used by jewelers, engravers, and dentists.

A great variety of **clays** is found in Arkansas. Many of these are suited for the manufacture of fine pottery. From other kinds, brick, drain tile, and coarser



Opening a bauxite mine in Pulaski county.

products are made. **Chalk** is found in the cretaceous section along Little river. It is used as a fertilizer and in making cement. **Ochers** are oxides of iron, used in making paints. They occur in a variety of red and yellow shades. The finest deposits are found in Drew county.

Building stone is abundantly distributed throughout the state. Blue, gray, and brown granites are found in Pulaski, Saline, Garland, and Hot Spring counties. Marbles of various shades are found in the Ozark region, and limestone, sandstones, and shales in different sections of the state.

Arkansas is noted for its mineral springs. Some of these have remarkable curative power, and have attracted health-seekers from every part of the world. Hot Springs, Sulphur Springs, and Eureka Springs have become



A coal bed in Sebastian county. The soil has been removed, and a layer of coal 8 feet thick, containing 10,000 tons, is exposed to view.

large centers of population, and are thronged with thousands of visitors throughout the year. Some of the largest springs are the Mammoth springs, in Fulton county; Silver spring, in Benton county, and Big spring, in Independence county. Crescent spring, in Carrol county, and Elixir spring, in Boone county, afford nearly pure water, less than one part in nine thousand being solid matter.

Manufactures.—Arkansas supplies the raw materials for a vast and varied line of manufactures. As her natural resources are developed and means of communication are improved, new industries are sure to spring up. Of her manufactures **lumber** is by far the most important. The pine and hard wood are sawed into lumber for further manufacture. The cypress is cut into shingles and barrel-heads, and the poorer kinds of oak into staves. There are over a hundred varieties of trees in the state that yield good lumber. The annual value of the lumber manufactured in the state is over \$25,000,000. This is equal to all the other manufactures combined. Next to lumber, **flour, meal, cotton-seed oil, and cake** are the most important manufactures. Little Rock, Fort Smith, and Pine Bluff are the leading centers. Iron foundries, ice factories, and lumber mills are found in many of the larger towns. An account of the various manufacturing industries is given in the description of cities.

History.—The name Arkansas (*ar'-kan-saw*) is the French spelling of the name of a tribe of Indians who once lived along the Mississippi river near the mouth of the Arkansas. The early explorers who visited this region applied the name to both the river and the territory bordering it on either side.

De Soto and his followers were the first white men to enter Arkansas. They crossed the Mississippi from the east and journeyed northwest as far as the Buffalo fork of White river. Then, turning southward, they struck the Ouachita river in the neighborhood of Arkadelphia, passing through the hot spring region, where De Soto is said to have halted, attracted by the waters, which were reported by the Indians to have wonderful healing properties. The expedition then followed the Ouachita and the Mississippi, going south as far as the mouth of the Red river, where the great leader died and was buried beneath the waters. This happened in 1541.

More than a hundred years afterward, in 1673, Marquette and Joliet, coming from Canada by way of the Great Lakes, descended the Mississippi as far as the mouth of the Arkansas river. Nine years later came the great La Salle and his trusted lieutenant, Henry de Tonti. Two Arkansas Indians guided the party to a friendly tribe, fifty leagues down the river, whence they at last reached the mouth of the Mississippi. He called the whole region drained by the Mississippi river and its tributaries *Louisiana*, the first name given by Europeans to the land of our state. In 1685 Tonti built a fort near the present post of Arkansas. This was the first white settlement within the limits of the state. Emigrants from Canada came to Arkansas from time to time, exploring the country and giving names to the rivers and mountains. St. Francis, St. Mary's,

Fourche la Pave, Petit Jean, Poteau, Ouachita, and many other names still bear witness to the early occupation of the French.

At the close of the French and Indian war in 1763, all of Louisiana west of the Mississippi was ceded to Spain; but it was taken back in 1800 by Napoleon, who wished to make it a base for attacking the British in Canada. His plans failed, however, and in 1803 he sold the entire region to the United States for \$15,000,000. In 1806 the present state of Louisiana was organized as the territory of Orleans, and all the land north of it, including our present state, was called Louisiana. In 1812 the territory of Orleans was admitted as a state and took the name of Louisiana. The remaining land north of it was then called the Missouri territory. In 1819 Arkansas was separated from the Missouri territory and given a separate territorial government.

The first governor of the new territory was James Miller, and the seat of government was then at Arkansas Post. In 1821 the seat of government was moved to Little Rock, where it has since remained. In 1836 Arkansas was admitted into the Union as a state, with James S. Conway as the first state governor. It had at that time a population of 55,000, one-fourth of which was colored. In 1860 the population was 435,450. In 1861 an ordinance of secession was passed by the state legislature. Arkansas took an active part in the "war between the states," furnishing 50,000 troops out of a voting population of about 62,000. Some of the important engagements fought during the war on the soil of Arkansas were the battles of Pea Ridge, Prairie Grove, Helena, Pine Bluff, Little Rock, and Marks Hill. In 1864 General Price



The state capitol at Little Rock.

left his camp in southwest Arkansas for his famous raid into Missouri. After this matters remained quiet in the state until the close of the great war. In 1865 the people of Arkansas abolished slavery and applied for readmission to the Union. But her senators and representatives were refused seats in Congress, and in 1869 the horrors of reconstruction began. The carpet-bag government reorganized the state, which was readmitted to the Union in 1870.

Since the civil war the population of Arkansas has increased to about 1,500,000. Her manufactures have increased in value from practically nothing to \$50,000,000. Four thousand miles of railroad have been built, and the development of her vast natural resources has been fairly well begun.

Government.—The state has a government, consisting of separate legislative, executive, and judicial departments. The legislative department of Arkansas consists of a Senate composed of thirty-two members elected every four years, and of a House of Representatives composed of one hundred members elected every two years. The legislature is known as the General Assembly. It meets biennially in the odd-numbered years. The executive department consists of a governor, a secretary of state, a treasurer, a state auditor, and an attorney general, all of whom hold office for a term of two years. The General Assembly also elects a commissioner of state lands, a commissioner of mining, manufacture, and agriculture,

and a superintendent of public instruction. There are also various boards composed of these officers, such as the board of railroad commissions, the board of elections, the board of pensions, the board of municipal corporations, and others.

It is the duty of the Governor to enforce the laws of the state. For this purpose he is made commander-in-chief of the military power of the state. He has power to appoint certain officers, to grant pardons, and may veto the bills passed by the General Assembly. The Secretary keeps the records of the state. The Treasurer receives and pays out the public money of the state. The Auditor is the state accountant, and the Attorney General is the legal adviser of the executive department. The Superintendent of Public Instruction has general control of the public school system of the state and of the money set apart for its support.

The Judicial Department consists of one supreme court, seventeen circuit courts, county and probate courts, city courts, and of justices of the peace, who administer justice in the townships. The Supreme Court consists of one chief justice and four associates elected for a term of eight years. Circuit judges are chosen for four years, and all lower judges and justices for two years. All judicial officers are elected by the people.

Arkansas is represented in the National Congress by two senators and by one representative from each of the seven congressional districts. The state is divided into seventy-five counties, each of which must, according to the constitution of Arkansas, contain at least six hundred square miles. Counties are divided into townships, the size of which is usually 36 square miles. Each county has a set of officers to manage local affairs, and each township has one or more justices of the peace and constables to keep order.

Education.—The constitution of 1874 provided for the establishment of free schools in Arkansas, "whereby all persons in the state between the ages of six and twenty-one years may receive gratuitous instruction." When Arkansas was admitted into the Union it was provided by Congress that one section of the public lands in every township should be set aside for the benefit of the public schools of the state.

In addition to the fund derived from the sale or use of such lands, the

state levies a two-mill tax on all the property in the state, and a poll tax of one dollar on every voter in the state. Besides this, every school district has the power to levy for school purposes not more than a five-mill tax on the property within the district.

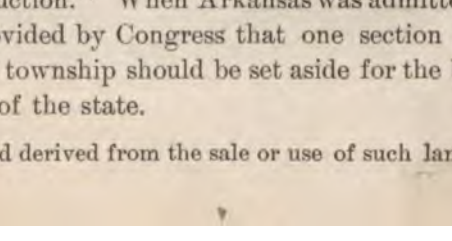
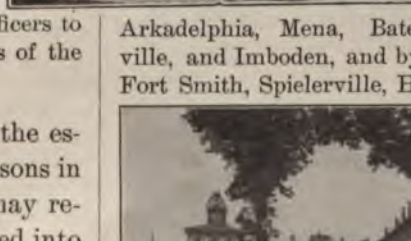
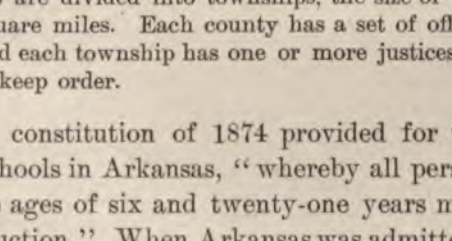
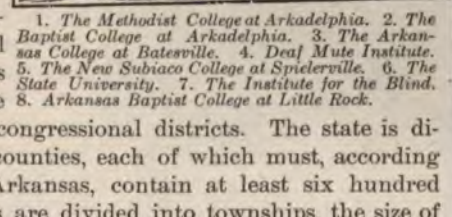
The general supervision of the school system is in charge of the state superintendent. Each county has an examiner appointed by the county judge, whose duty it is to examine and license teachers. Each numbered school district has three directors, and each special district has six directors, who have charge of the schools. They provide schoolhouses, charts, maps, globes, etc., engage teachers, and per-

form other necessary duties. Throughout the state separate schools are provided for white and colored children. In all of the cities and large towns public high schools are established which fit young people for entrance to colleges, scientific schools, and for business.

The State University is at Fayetteville. Here courses are given in sciences, classics, engineering, law, medicine, and agriculture. The University has about forty instructors and six hundred students. Free scholarships in the university are issued by county judges. The Pine Bluff Normal School for the instruction of colored teachers is under the supervision of the University. Besides the State University there is a school for the blind, a school for deaf mutes, and a reform school, all of which are located at Little Rock and supported by the state.

Further provision for higher education is afforded by Protestant colleges established at Fordyce, Conway, Orchard, Little Rock, Arkadelphia, Mena, Batesville, Searcy, Clarksville, Quitman, Yellville, and Imboden, and by Catholic colleges at Pine Bluff, Little Rock, Fort Smith, Spiellerville, Helena, Jonesboro, Morrilton, and Hot Springs.

The Insane Asylum at Little Rock is an important institution under the care of the state. This is one of the best equipped in the South, and affords every advantage to this class of people.



1. The Methodist College at Arkadelphia. 2. The Baptist College at Arkadelphia. 3. The Arkansas College at Batesville. 4. Deaf Mute Institute. 5. The New Subiaco College at Spiellerville. 6. The State University. 7. The Institute for the Blind. 8. Arkansas Baptist College at Little Rock.

State Insane Asylum at Little Rock.

Cities.—On the petition of the inhabitants of any locality of the state, signed by at least twenty qualified electors, they may receive a charter, or act of incorporation, from the General Assembly, giving them the power of electing officers to manage public affairs. Such a locality then becomes a municipal corporation. If it contains over 5,000 inhabitants it is called a city of the first class. If the population is between 2,500 and 5,000 it is called a city of the second class. An incorporated town or village is a municipal corporation containing less than 2,500 inhabitants.

Cities of the Arkansas Valley.*

Little Rock (Pulaski county seat; pop. 38,307) is the capital and commercial metropolis of Arkansas. It is situated in the geographical center of the state on the Arkansas river and at the intersection of the chief railroads. It is one of the most important cotton receiving centers in the United States, handling annually nearly 300,000 bales. It is the largest manufacturer of cotton-seed oil in the world, shipping annually about 800 car loads of oil and 3,000 car loads of meal. It also ranks high as a grain market, receiving annually over 4,000,000 of bushels of corn, oats, and wheat. Little Rock is not only the chief shipping point, but also the chief manufacturing center of the state. There are about three hundred industrial plants of all sorts. The car shops of the Missouri Pacific railway, employing about 3,000 men, are located here. Besides the industries connected with cotton, there are large lumber and furniture factories and machine shops. The city is the chief center for the wholesale and jobbing trade of the state. The State Insane Asylum, Medical School, Deaf



Little Rock.—Maine street in the business section.

of smokeless coal. It is on the St. Louis and San Francisco railroad and has good facilities for shipping the immense output of its coal mines. Population in 1906, 3,000. **Greenwood** (pop. 491) is one of the county seats and an important railroad center.

Russellville (Pope county seat; pop. 1,832) is situated within five miles of the Arkansas river, on the Iron Mountain railroad. Three large coal mines are in operation near the city. Russellville has several cotton gins, a large ice-plant, a furniture factory, and excellent public schools. The wonderful pontoon bridge across the Arkansas river is within four-and-a-half miles of the city. Population in 1906, 4,000.

Handle and wagon factories at Fort Smith.

Atkins (pop. 945) is at the foot of Crow mountain, five miles north of the Arkansas river. Lumber and cotton are shipped by the St. Louis, Iron Mountain and Southern railroad. The town has a grand public school and two banks. Population in 1906, 1,250. **Dover, London, and Pottsville** are other leading incorporated towns in Pope county.

Clarksville (Johnson county seat; pop. 1,086) is near the Arkansas river, in the hard coal district. Within a radius of two to five miles of the city are nearly forty mines in operation. The town is an important shipping point for cotton, coal, and wood. Clarksville is the seat of the Arkansas Cumberland college. Population in 1906, 2,800.

Coal Hill (pop. 1,341), fifteen miles southwest of Clarksville, is a mining and shipping point.

Dardanelle (Yell county seat; pop. 1,602) is a rapidly growing and promising little city situated on the Arkansas river at the terminus of the Russellville and Dardanelle branch of the Little Rock and Fort Smith railway.

Dardanelle has a cotton-seed-oil mill, a cotton mill, and several cotton gins. Much cotton is shipped from this point. One of the longest pontoon bridges in the world crosses the Arkansas river at Dardanelle. The population in 1906 was 3,000.

Danville (pop. 600) is the county seat for the western district of Yell county. It is an agricultural and mining center. **Belleville** (pop. 552) is a prosperous business center and shipping point.

Paris (Logan county seat; pop. 836) is a rapidly growing town situated at the terminus of the Arkansas Central railroad. Large crops of cotton, grain, and



Pine Bluff.—Shipping cotton.

Mute and Blind Schools, the State Prison, and various denominational schools and colleges are located in Little Rock. The population in 1906 was about 50,000.

Pine Bluff (Jefferson county seat; pop. 11,496) is one of the busiest and most prosperous cities of the state. It is situated on a high bluff in the south bend of the Arkansas river in a fine agricultural and cotton-growing country. Many thousands of bales are handled at Pine Bluff each year. There are also large shipments of strawberries, plums, apples, peaches, and pears.

Pine Bluff has extensive iron works and manufactures carriages, furniture, flour, and cotton-seed oil. The railroad shops of the St. Louis Southwestern or "Cotton Belt" railroad company are located here. There is also steamboat service down the Arkansas and Mississippi rivers. In addition to its public schools, Pine Bluff has a business college and the State Colored Normal college. **Redfield** is a prosperous town.

Fort Smith (Sebastian county seat; pop. 11,587) is situated at the confluence of the Arkansas and Poteau rivers on the border of Oklahoma, in the center of an unexcelled mineral and agricultural region. Five railroad routes pass through the city. Fine fire and brick clays, lead and zinc, valuable building stones, excellent pine timber and fine hardwoods are among the natural products. Tool handles, refrigerators, sashes and doors, bedsprings and mattresses, and shoes are among the manufactures. There are also three planing mills. Considerable cotton is grown near Fort Smith, supplying the material for a cotton compress, two cotton gins, and a cotton-seed-oil mill. The city has an excellent public school system. Among the private schools are St. Ann's academy and Fort Smith Commercial school. The population was about 25,000 in 1906.

Huntington (pop. 1,298) is located in a mountainous region that produces a vast amount



Ola, near Dardanelle.—Saw logs of oak, ash, gum, and hickory awaiting shipment.

tobacco are grown near the town, and four coal mines are in operation. Paris has a cotton-seed-oil mill, a roller flour mill, two planing plants, and is a center for local trade.

Booneville (pop. 988) is an old town rebuilt. It is situated on the Petit Jean river on the Rock Island railroad, and has a planing plant, sawmill, a flour mill, and two cotton gins. Population



A steamboat on the Arkansas river.

[* The population of all cities and towns is given according to the federal census of 1900, except where otherwise stated.]

in 1906, 2,100. **Magazine** (pop. 897) is beautifully situated on the Petit Jean river within twelve miles of Mt. Magazine, the highest point in the state. Deposits of slate, soapstone, clays, and good building stone are found here, and there is an abundant supply of excellent timber. The town has an academy known as the Magazine-Ouachita academy. Population in 1906, 1,500.



Petroleum well near Stuttgart.

Ozark (Franklin county; pop. 848) is the county seat of the northern district. **Charleston** (pop. 400) is the county seat for the district south of the Arkansas river. Both are prosperous railroad towns and are rapidly increasing in importance. **Denning** (est. pop. 1906, 1,500) is situated about one mile distant from the Arkansas river on the Little Rock and Fort Smith railroad. Coal is the leading mineral in this county, and coal mines are in operation near Denning, employing 700 men and boys. On the divide between Denning and Altus is located the Hiram-Lydia college. **Altus** (pop. 500) is in a splendid farming and grape region.

Van Buren (Crawford county seat; pop. 2,573) is situated at the junction of the Little Rock and Fort Smith and the Frisco railways on the Arkansas river. It has numerous churches and schools, five newspapers, machine shops, lumbering and flouring mills, and canning factories.

Perryville (Perry county seat; pop. 200) is the chief town of the county, and is noted for its good churches and excellent schools.

Morrilton (Conway county seat; pop. 1,707), a modern and progressive town on the Little Rock and Fort Smith railroad, ships large amounts of cotton, live stock, and farm products.

Arkansas City (Desha county seat; pop. 1,091) is located on the Mississippi river about 70 miles south-east of Little Rock. It is the center of a fine cotton, lumber, and stock region and ships large amounts of these products by way of the river and railroad. **Dumas**, the seat of government for the northern part of the county, manufactures lumber and staves.

Star City (Lincoln county seat; pop. 330) is the chief town in the county. It has excellent schools and churches, a newspaper, and is the leading trading center.

Conway (Faulkner county seat; pop. 2,003) is attractively situated about six miles east of the Arkansas river, and is on the route of the St. Louis, Iron Mountain and Southern railroad.



View near Batesville.—Lock and dam on the White river.

In addition to its agricultural industries, Conway has many saw and planing mills and is a busy shipping point for cotton and cotton-seed oil. The Hendrix Methodist college for men, and the Central Baptist college for women are here. Population in 1906, 2,750.

Stuttgart (Arkansas county; pop. 1,258) is a rapidly growing town in the fine grain and stock-raising region; it has excellent public schools and churches of the leading denominations.

De Witt with a population of 318, is the county seat of Arkansas county. It is on the north bank of the Arkansas river and is an important shipping point for that locality.

Lonoke (Lonoke county seat; pop. 951), on the Choctaw road, has a cotton gin and cotton-seed-oil mill, a sawmill, and several lumber factories. Population in 1906, 2,500.

Cities of the White River Valley.

Batesville (Independence county seat; pop. 2,327) has unusually fine commercial advantages. White river, upon which it is located, will soon be navigable during the entire year. At present a system of ten locks and dams, the first of which is located at Batesville, is being built by the United States government. The main line of the St. Louis, Iron Mountain and Western railroad passes through the city.

Arkansas college, the oldest in the state, is located at Batesville. There is also a fine federal building used for the courthouse and post office. The population in 1906 was 4,500. **Sulphur Rock** (pop. 338) takes its name from two large sulphur springs near.

Clarendon (Monroe county seat; pop. 1,840), on the White and Cache rivers, is the western terminus of the Arkansas Midland railroad and on the main route of the St. Louis and Southwestern railroad. Its factories manufacture

woodenware, casks, and barrels, shoe lasts, staves, plow beams, and boat oars. The oar factory is the largest of its kind in the world. Buttons also are manufactured from mussel shells.

Brinkley (pop. 1,648) is an important railroad center. It has extensive lumber, cotton-oil mills, and machine shops. **Holly Grove** (pop. 301) is the center of the cotton-growing section of Monroe county, shipping 10,000 bales annually. It has four ginning plants and is a trade center.

Searcy (White county seat; pop. 1,995) is noted as a health resort on account of its white sulphur springs and beautiful surroundings. The Speers-Langfort institute and the Gallaway college for females are located here.

Newport (Jackson county seat; pop. 2,866) is picturesquely located on the White river. The pearls found in this river are sold all over the country at good



Central Baptist College at Conway.

prices. The great forests of valuable wood and the wonderful fertility of the soil in this region make Newport a busy industrial center.

The manufacturing interests of the city include a cotton compress and gins, a cotton-seed-oil mill, lumber mills, and wagon factories. Three divisions of the St. Louis, Iron Mountain and Southern railroad pass through Newport.

Des Arc (Prairie county seat; pop. 640) is located on White river and has fine advantages for manufacturing. It has important manufactures of lumber and cotton-seed oil. **Deval's Bluff**, county seat for the southern district (pop. 605), is noted for its boat-oar factory and other manufactures of lumber. Thousands of railroad ties are floated down the White river to this point, where they are lifted out by a giant steam derrick. Deval's Bluff was an important military station during the Civil War, and some of the old fortifications are still standing. **Hazen** (pop. 429) is noted for fine hunting and fishing.

Heber (Cleburne county seat; pop. 1906, 1,300) is located in the center of the county. It has large lumber and flour mills. It is fast becoming popular as a health resort, for which its mountain situation and pure water fits it.

Clinton (Van Buren county seat; pop. 297) has lumber mills and various business enterprises.

Mountain View (Stone county seat; pop. 226) is the chief town of the county. It has steam flour mills, and is the chief center of trade.

Marshall (Searcy county seat; pop. 260) is the seat of Marshall academy. It has a variety of business and mining interests and is a growing town.

Yellville (Marion county seat; pop. 578), on Crooked creek, is the center of the mineral district, and several of the best mines in the state are within a radius of eight miles. The White river branch of the St. Louis, Iron Mountain and Southern railroad passes through the town. Population in 1906, 1,100.

Mountain Home (Baxter county seat; pop. 364) is the principal town in the county. It is the seat of the Mountain Home Baptist college.

Melbourne (Izard county seat; pop. 256) has lumber and flour mills, a carding mill, and is the chief business center of the county.



A rice field in Lonoke county.

Mammoth Spring (Fulton county; pop. 717) is noted for the vast number of natural springs in its vicinity. The volume of water from these furnishes power for many factories; among these are flouring mills and axe handles, hub factories, and a large cotton mill. **Salem** (pop. 650) is the county seat. It has flour and lumber mills.

Evening Shade (pop. 428) and **Hardy** (pop. 497) are the county seats of Sharp county. This county is rich in mineral wealth. The zinc mines of the northern part are among the richest in the state.



Jonesboro.—Business section.

The Eureka Hardwood Lumber Company is located here. There is also an oil mill company established here and two banks.

Towns of the St. Francis and Mississippi Valleys.

Helena (Phillips county seat; pop. 5,550) has an excellent commercial location upon the Mississippi river. It is situated on high land in almost the center of the eastern boundary of the state, and is the terminus of three railroads—the Illinois Central, the Arkansas Midland, and the St. Louis, Iron Mountain and Southern railroads. The city is an important lumber market and a shipping-point for cotton and cotton-seed oil.

Great feeding yards for cattle are located here and hundreds are annually fattened for market on the meal and hulls of the cotton-seed-oil mills. In addition to its public schools, there is a normal school for colored students. The public library, the U. S. Circuit Court, and the Post Office occupy the finest buildings in Helena. The population in 1906 was about 10,000.



Marvell (pop. 556) is in the heart of the richest farming land of the state. It has several lumber manufacturing and cotton ginning establishments.

Marianna (Lee county seat, pop. 1,707) is an important railroad center and one of the most thriving towns in the state.

The surrounding forests of hard and soft woods and the rich farming lands supply its lumber mills and ginning establishments. Marianna has newspapers, a bank, and has modern improvements.

Forrest City (St. Francis county seat; pop. 1,361) has a high and healthful situation on the western slope of Crowley's ridge. It has a cotton-oil mill, two cotton gins, and factories for the manufacture of staves, spokes, handles, and buttons.

Its many modern improvements make Forrest City an attractive place. It is at the crossing of the Chicago, Rock Island and Pacific railroad and the St. Louis, Iron Mountain and Southern railroad. The population in 1906 was 4,000. **Palestine** is the second town of importance.

Marion (Crittenden county seat; pop. 250) is the leading town in the county.

Jonesboro (Craighead county seat; pop. 4,508) is a rapidly growing modern town located on Crowley's ridge at the crossing of two leading railways. It is an



Lumber barge on the Mississippi bound for Memphis, where much Arkansas lumber is manufactured.

important lumbering center and shipping point for staves, headings, and hardwood timbers.

Paragould (Greene county seat; pop. 3,324) has a fine healthful location and is destined to become the chief town of northeastern Arkansas. The city is well laid out, has fine public buildings, and excellent schools. The chief industries are in connection with lumber and cotton

Corning (Clay county seat; pop. 784) is the center of the heavily timbered and fine farming section. **Rector** (pop. 520) is in a rich farming section. Building material, lumber, flour, and gasoline engines are manufactured. **Rector** is also a noted educational center. **Piggott** (pop. about 300)

Augusta (Woodruff county seat; pop. 1,040) is in the western part of the county, on White river and the Iron Mountain railroad. It is a well-developed modern town and has saw and grist mills, cotton gins, and a large local trade.

Cotton Plant (pop. 1,500) is four miles east of the Cache river on the Choctaw railroad, in a fine timber region.

is county seat for the eastern district and has extensive lumber industries.

Walnut Ridge (pop. 550) is the county seat of the eastern district, while **Pochatan** (pop. 249) is county seat of the western district of Lawrence county. **Black Rock** (pop. 1,400) is one of the most important cities in the county. Furniture and other lumber products are the leading manufactures. Fine deposits of porcelain clay are in the neighborhood. **Portia** (pop. 400) has lumber interests and cotton ginning and flour establishments. Its natural park is one of the finest in the state.



Paragould during the merchants' carnival.

Pocahontas (Randolph county seat; pop. 1906, 2,150) is situated on the Black river, which is navigable up to this point by steamboats, and on the St. Louis and San Francisco railroad. Among the minerals found in this vicinity are lead, zinc, and small quantities of gold. A mining company is established in Pocahontas, but the chief industry of the town is the manufacture of lumber. The town has several sawmills, two hoop factories, and a flouring mill. Eighteen miles west of Pocahontas are the famous Ravenden springs.

Harrisburg (Poinsett county seat; pop. 462) is situated on the St. Louis, Iron Mountain and Southern railroad, within a few miles of the L'Anguille river and among the foothills of Crowley's Ridge. The timber growth here is superb and Harrisburg has many lumber factories. Many large vineyards are located near Harrisburg.

Wynne (Cross county; pop. 1,631), on the western base of



Osceola.—Cotton compress and oil mill.

Crowley's Ridge, is the central and chief town in the county. It has lumber manufactures and modern improvements. **Vanndale** is the county seat.

Osceola (Mississippi county seat; pop. 1906, 3,000), located on the Mississippi river and "Frisco" railroad, has extensive manufactures of lumber. Tool handles are a specialty. There are also cotton gins, compresses, and oil mills.

Luxora (Mississippi county; pop. 923) is on the banks of the Mississippi river in rich, alluvial farming lands and fine timber country. Luxora is on the main line of the St. Louis and San Francisco, and also on the Jonesboro, Lake City and Eastern railroads. The chief industries are cotton ginning and the manufacture of lumber. **Blytheville** is an important railroad center, in the northern part of the county. There are fine schools and churches and a hospital.

Cities and Towns of Northwest Arkansas.

Fayetteville (Washington county seat; pop. 1906, 7,000) is pleasantly situated on high ground about five miles from White river. It is on a junction of the St. Louis and San Francisco railroad and on the Ozark, Cherokee Central and Texas division of the same route.

Its lumber, flour, and rolling mills receive their water power from the White river. There are also marble, granite, lumber, and cement works. The manufacture of wagons and finished wagon materials is another lead-



The city of Fayetteville.

ing occupation. The Arkansas State University, a commercial college, and a United States experiment station are located here.

Springdale (pop. 1906, 2,000), in Washington county, a prosperous town on a branch of the "Frisco" system, is an important shipping point for fruits and live stock. Valuable deposits of bituminous coal and limestone are found near. There are large apple packing houses and establishments for canning and evaporating fruit. **Prairiegrove** (pop. 1,300) is situated on the St. Louis and San Francisco railroad near a branch of the Illinois river. The largest apple and tomato canning plant in the state is located here. There is also a brick and tile manufacturing company.

Bentonville (Benton county seat; pop. 1,843) is situated 1,300 feet above the sea level in the heart of the great apple belt of Arkansas. There are over 5,000,000 trees in the country with an annual output of 3,000,000 to 4,000,000 bushels of apples. The principal industry is the drying and evaporating of apples and the packing of apples for shipment. Bentonville is the shipping point for grain and live stock. Is on a branch of the St. Louis and San Francisco railroad. The Ouachita Bentonville academy and a United States weather station are located here. **Rogers** (Benton county; pop. 2,158) is located on the Ozark plateau, about 1500 feet above the sea level near White river. Three railroads pass through the town. The preserving of fruit, the distillation of vinegar, and the manufacture of flour are the leading industries.

Siloam Springs (pop. 1,748) gets its name from one of the twin springs,

famous for their pure cold water and medicinal qualities.

An immense number of chickens and eggs are shipped from this point. There are several fruit evaporators in the city, one of them being the largest in the state. The Arkansas Conference college is located here. Siloam Springs is a very popular summer resort. The population in 1906 was about 4,000.



Rogers.—A business corner.

Gentry (pop. 914), about ten miles north of Siloam Springs, is famous for fruit growing and poultry raising. There are many large springs near, furnishing water power for mills. **Gravette** has two flouring mills, two evaporators, two fruit tree nurseries, a potato storage house and other business industries.

Eureka Springs (Carroll county seat; pop. 1906, 5,157) is in the heart of the Ozark mountains at an elevation of 2,000 feet. Because of the celebrated mineral waters of Basin spring it is a popular pleasure and health resort. The numerous caves and springs, Pivot Rock, and the Natural Bridge are the chief points of interest. Eureka springs water is shipped all over the country. Timber is abundant and lumber companies and cabinet manufacturers carry on a successful business.

Berryville (Carroll county seat; pop. 551) is situated on prairie land broken by the Osage and Kings rivers, which afford fine water power. Its principal manufacture is flour. It has also a large and steadily increasing lumber trade.

Green Forest, in the same county, lies in the fruit belt and has enormous canning interests, lumber and flour mills. The Ozark Normal school is located here.

Harrison (Boone county seat; pop. 1,551) is the most important railroad town in the county. It has large flour mills and a fine government building.

Huntsville (Madison county seat; pop. 550) is one of the oldest towns in the state. It is the chief shipping point for the county for cotton, fruits, live stock, and other farm products.

Jasper (Newton county seat; pop. 300) has important lumbering and business interests.

Cities of the Ouachita Highlands.

Hot Springs (Garland county seat; pop. 9,973) is known throughout the world as a health resort on account of its famous hot springs, many of which have remarkable medicinal properties. It is picturesquely situated in a narrow valley between two ridges of mountains. The springs, of which there are more than seventy in the neighborhood, are under the control of the United States govern-



The "Narrows," near Eureka Springs.

ment, which has laid out roads and parks. The city is noted for its hotels and sanitariums, of which there are about seventy-five; these accommodate more than fifty thousand visitors annually. The Army and Navy General Hospital is also located here.

Benton (Saline county seat; pop. 1,843) is at the junction of five railroads, within one mile of Saline river, which affords fine sawmill sites, and within thirty miles of the famous Hot Springs.

The greatest *bauxite* mine in the world is located in Benton. The deposits of potter's clay and kaolin are inexhaustible, and the manufacture of pottery is one of the chief industries of the city. Timber of all kinds grows in the surrounding country, and furniture, sashes, and doors are also among the leading manufactures.

Malvern (Hot Springs county seat; pop. 1,582) is on the Iron Mountain railway and a branch of the Chicago, Rock Island and Pacific. Two large brick and tile-making factories are in operation. Malvern has a fine graded school that is directly connected with the state university at Fayetteville. The population has doubled since 1900.

Arkadelphia

(Clark county seat; pop. 2,739) has a fine location on the Ouachita river and Iron Mountain railway, affording splendid commercial advantages for its lumber, flour, and cotton mills.

The Ouachita Baptist college and the Arkadelphia Methodist college are located here and Arkadelphia is known as the educational center of the southwest, and is often called the Athens of Arkansas. The population is now about 5,000.

Fordyce (pop. 1,510) is the largest town in Dallas county. It is a busy modern city, and has lumber factories, newspapers, first-class schools and all modern improvements. It is on the line with the Cotton Belt railway which cuts through the southeastern corner of the county.

Princeton, 22 miles northwest of Fordyce, in the center of Dallas county, is the county seat. **Sheridan** (Grant county seat; pop. 210) is the most important town in the county.



Bentonville.—View of the park.

Murfreesboro (Pike county seat; pop. 350) is on a branch of the Little Missouri river, and is having a rapid development. **Pike**, the largest city in the county, is at the terminus of a branch of the Iron Mountain railway. It has valuable mining interests, and is an important trading center.

Mt. Ida (Montgomery county seat; pop. 260) has a high and healthful situation, and increased rapidly in population during recent years.

Rison (Cleveland county seat; pop. 453) is a new and prosperous town on the main line of the Cotton Belt route.

It has important manufactures of yellow pine and hardwood lumber, and is a cotton-growing center. **Kingsland** (pop. 365), **New Edinburgh**, and **Kedron** are other important railroad towns.

Mena (Polk county seat; pop. 3,423) is chiefly a railroad town, being the division terminus of the Kansas City Southern railroad, and also the terminus of the new Hot Springs and Mena railroad. The surrounding country is rich in lead, zinc and iron ores, and in manganese and slate deposits. The development of these mines and deposits, together with lumber and cotton industries, forms the chief source of the city's income. Mena has several planing mills, two cotton gins, a brickyard, and other industries. It has also two academies and a business college. **Hatfield** is the second town in importance in the county.

Waldron (Scott county seat; pop. 487) is situated at the terminus of the Arkansas Western railroad. Fine timber can be had in abundance, and there are several sawmills in the town.

Cities of Southern and Southwestern Arkansas.

Texarkana (Miller county seat; pop. 4,914) is situated on the exact border line between two states, so that one-half the city is in Arkansas and the other half in Texas. Each city has a distinct government. It is the largest railroad center south of the Missouri river, being the terminus of several trunk lines.

Sewer pipe, lumber, and furniture are manufactured here. The large crops of cotton supply



Hot Springs.

material for many compresses and cotton-seed-oil mills. Other industries are iron works and a brick factory. There are many fine public buildings, including those of the Federal courthouse, the county courthouse, the high school, and the Texarkana Industrial college. Both cities together had a population of 25,000 in 1906.



Portland cement works at White Cliffs.

Lewisville (Lafayette county seat; pop. 548) is on the branch of the Cotton Belt railroad that runs to Shreveport. The lumbering industry has helped the town to make rapid progress. The population of Lewisville was about 2,200 in 1906.

Stamps (Lafayette county; pop. 1021) is in the pine belt at the crossing of the St. Louis Southwestern and the Louisiana and Arkansas railroads. The output of pine lumber in this town alone is 250,000 feet daily. Hardwoods are also manufactured. It has a number of successful mercantile establishments and several fine buildings, including that of the high school. The population of Stamps has doubled since 1900. **Frostville**, a rapidly growing business center, is the second town of the county in size.

Magnolia (county seat of Columbia county; pop. 1,914), an important town, on the Louisiana and Northwestern railway, has considerable cotton trade, oil mills, and saw and planing mills. It is the seat of Southwestern academy.

El Dorado (Union county seat; pop. 1,069) is the leading town in this county. It has cotton gins and compresses and lumber mills, flour mills, and is a modern and progressive town. Within twelve miles of El Dorado there are large coal deposits along the Ouachita river.

Huttig and Felsenthal, in Union county, are large and growing towns, and have extensive manufactures of lumber. **Cargile and Junction** are important railroad towns. Junction had about 2,500 people in 1906. Its leading industries are the shipment of cotton and the manufacture of lumber.

Hamburg (Ashley county seat; pop. 1,260) is located in the cotton region on the Mississippi, Hamburg and Western railroad. Much cotton is bought and sold here and shipped to other places. The lumber industry is, however, first in importance, one of the largest sawmills in the South being located at Crossett, twelve miles distant from the city.

Lake Village (Chicot county seat; pop. 1,130) is situated on the famous Lake Chicot, eighteen miles long and about one mile wide.

The water of Lake Chicot is as clear as crystal, and its gradually sloping banks are covered with beautiful Bermuda grass. The attractions offered hundreds of visitors who come to the town in the summer and autumn seasons are excellent fishing, hunting, good bathing and boating, and scenery rivaled only by that of the Great Lakes. **Dermott** (pop. 467) manufactures staves and lumber.

Monticello (Drew county seat; pop. 1,579) is pleasantly situated on high land about forty miles west of the Mississippi river, on the Warren branch of the St. Louis, Iron Mountain and Southern railroad. There are large deposits of ochre

here. The town has cotton mills, a cotton-seed-oil mill, a cotton compress, a brick and tiling plant, and a hardwood manufacturing plant. In addition to the public schools, there is also Hinemon's University school, a co-educational preparatory institution.

Wilmar (pop. 844), in Drew county, is situated near oak, hickory, gum, and cypress forests, and large shipments of all these are made from Wilmar. Beauvoir college, with an enrollment of nearly five hundred white students, and Harrison academy for colored students, are located at Wilmar.

Warren (Bradley county seat; pop. 954) is located at the terminus of three railroads. In the manufacture of yellow pine Warren excels all other points in the state. Its daily output is 500,000 feet. Other industries in the town are a stove company and a vehicle stock company. In addition to the public schools there is a Presbyterian training school.

Hampton, the county seat of Calhoun county, is a prosperous little town of 500 inhabitants.

Camden (Ouachita county seat; pop. 2,840), on the right bank of the Ouachita river, is situated in the heart of an immense coal, oil, and timber district. Steamboats ascend the river to Camden, which in this way has become an important shipping point for cotton, lumber, and live stock. Camden has several cotton gins, cotton-seed-oil mills, and compresses, and is engaged, to some extent, in farming. The deposits of coal and oil are mostly undeveloped.

Stephens (pop. 417) is in the extreme southeastern corner of Ouachita county, on the St. Louis and Southwestern railroad. It is in a splendid timber country, and several sawmills and a stove mill are located near.

Prescott (Nevada county seat; pop. 2,005) is the chief town in this county. It has extensive manufactures of lumber and brick, cotton gins, and excellent schools, churches, and newspapers.

Hope (Hempstead county; pop. 1,644) is located in a fine farming country. There are extensive deposits of potter's clay near by.

Hope is one of the most important cotton markets in the state, and several immense cotton storage houses with compresses are located here. There is also a cotton-seed-oil mill and manufactures of fine hardwood lumber. The transportation facilities of Hope are excellent, it being at the junction of four railroads. **Washington** (pop. 375) is the county seat.

Ashdown (Little River county seat; pop. 400) is situated in the chalk region, between the Little and Red rivers. It has a cotton-seed-oil mill, several cotton gins, chalk and cement works, fertilizer works, sawmills, a handle factory and two brickyards. An industrial school is located here.

Lockesburg (Sevier county seat; pop. 1,500) is situated on the high divide between the Saline and Cossatot rivers. A great deal of lumber is manufactured.

The Hesperian High School at Lockesburg is one of the oldest educational institutions in the state.

Horatio (pop. 625), in Little River county, is near Little river, a stream abounding in fish. Many pearls are found in it. The greatest natural curiosity of the city is the so-called "Horatio diamond." This is found in the rough in and about the town, and is a beautiful clear crystal. Yellow pine, oak, gum, ash, hickory, and walnut lumber are manufactured.

De Queen (pop. 1,300), in Sevier county, is in the center of a remarkably fertile agricultural county. Everywhere may be seen large, flourishing farms and beautiful orchards. De Queen has two banks, and several manufacturing enterprises, including a hardwood lumber plant, planing mill, and a wagon and an ice factory. Portland cement is manufactured at **White Cliffs**.

Nashville (Howard county; pop. 1,300), the terminus of the Arkansas and Louisiana railroad, has a cotton compress and gin, lumber and sawmills, and marble works. There are also coal mines in the vicinity. The town is rapidly becoming a well-known little trading point in the state.

Center Point (pop. 334) is the county seat.



On the Ouachita at Camden.—A load of cotton and seed.

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